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Abstract

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Professional Development

Research

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Professional Development

Using Visual Pedagogy to Tell Our Stories

Chris LaBelle

Abstract

As both mode and medium, web-based video continues to emerge as the vehicle by which more online information is disseminated and consumed. This article provides suggestions for helping Extension agents become more familiar with how visual content accessed online is interpreted by end-users (visual literacy). Suggestions for fostering the individual and organizational transformation needed for visual literacy to become a more important component of Extension agents' skill sets are offered. Examples of how video and photo content is being used in web-based Extension-related contexts are provided with a focus on those examples that facilitate online community engagement and participation.

The term "visual literacy" has been used for some time and is credited to John Debes (1969). Webster's dictionary defines the term as follows, "the ability to recognize and understand ideas conveyed through visible actions or images" (2002). Although visual literacy is often viewed from the standpoint of interpreting visual content, visual literacy is also about content delivery, or pedagogy. For the purposes of this paper, I will use the term "visual literacy" in reference to both content reception and delivery. Having defined the term, we're still left with an important question: Why not use the rich literature focused on text-based literacy as a means to understand what happens when users view videos and interpet visual media? Text-based literacy is simply not robust enough to adequately describe the processes that underlie our interpretive translation of video content, especially when that activity is enmeshed with written text and interactivity.

From its inception, the Cooperative Extension Service has focused on the every-day, practical needs of the general public. These needs have traditionally been met by "high-touch" instructional approaches. In fact, some of the first classes offered in the early 1900s by Extension covered the basics of food preservation and it is not surprising that almost one hundred years later, some of Extension's most popular online documents cover this same topic. While a tradition of face-to-face engagement is an essential part of our Extension culture, our future will be determined to a large extent by our ability to more successfully engage our online Extension clientele.

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Some Extension faculty have looked more closely at the needs and interests of our online clients. Herring (2008) looked more closely at the characteristics of those who read Oregon State University Extension Service's online content, and found that only 1% of the online audience was under 25 years old, while 10% was between 25 and 35. The primary content areas of interest to online customers over 35 were gardening, food preservation and land and soil management. If we look at website analytics (FOOTNOTE #1) to better understand visitor characteristics for non-Extension websites that focus on topics of interest to our typical Extension audience (FOOTNOTE #2), we find that the primary visitors to these sites are female and over 45 years old. Interestingly, the majority of visitors to YouTube and other video repositories like Vimeo are male and under 35 years old. If one of our stated objectives in many Extension offices is to virtualize more of our services and content to maximize efficiencies, what is the significance of this apparent disconnect between the typical profile of online video consumers and the profile of our existing online Extension customers mean? Does this suggest that online video is not a preferred vehicle for communication among our current Extension audience and that PDFs and text-based articles should suffice?

While most extension programs have traditionally done a good job of evaluating audience needs, the existing services and pedagogical approaches that have taken hold within Extension to meet these needs can at times appear out dated. Extension-based articles about communities of practice (Sobrero & Craycraft, 2008), multimedia (Williamson & Smoak, 2005) and distance education (Dromgoole & Boleman, 2006) suggest that many Extension agents are using new vehicles of communication, but obstacles around adoption and audience awareness still exist. King and Boehlje (2000) believe that Extension's large and traditional organization puts them at a disadvantage in an aggressive knowledge-based market and suggest that external competition to Extension services can be overcome in large part by being more sensitive to audience needs. A perusal of the large number of Extension topics around the country available only in text format is a good indicator of Extension's historical focus on print-based publications and points to the inclusion of instructional video content as a more recent focus for many Extension services.

As Extension moves towards more expansive transformational change caused by budgetary constraints and video production becomes more accessible to a larger group of educators, Extension agents must adapt more of their communication to an online audience that prefers visually-rich content. Here are some obstacles that Extension agents might face as they seek to develop their own skills in this area.

Keywords
video, pedagogy, stories

Extension-Specific Obstacles Towards a More Meaningful Use of Visual Pedagogy

1. The rate of advancement in the area of visual literacy is rapid and keeping abreast of changes can be challenging.
2. The diversity of instructional approaches associated with multimedia often requires the educator to think about information delivery in completely new ways, which can be uncomfortable and time consuming.

3. Web 2.0 models of participation often require Extension agents to act as facilitators as opposed to autonomous program leaders or content experts.
4. Many university Extension programs utilize antiquated promotion and tenure guidelines, which do not appropriately recognize the value of new media as both a vehicle of content and at times, a product itself. This can dissuade educators from using video and new media.
5. We are at times out of touch with our audience (NASULGC, 1996).
6. We sometimes lack the technical skills required to use visual assets in our communication activity (Parker, 2009), which results in a product of sub-par quality. Alternatively, we can also set up standards for video that are too high or unreasonable for certain types of audiences and online contexts.
7. Outdated notions within Extension of what constitutes appropriate video length, quality, video production ownership, and delivery method hamper a more democratized and innovative approach to using video as a communication tool.

Much of the existing Extension-based literature focused on video discusses the merits of interactive video or teleconference via video. Not surprisingly, this niche application of video has helped relieve budgetary pressures and often allowed country offices to more effectively engage geographically dispersed clientele (Nudel, Roth & Saxowsky, 2005; Bequette, 2006). However, this form of video is generally synchronous and has for the most part been used to augment phone conversations with video; not distribute educational resources. While some Extension articles provide basic video production tips (Polson, 1999), very little has been written within Extension circles about a more profound issue: How is visual literacy reshaping the preferences and learning styles of our audience, and in light of these changes, how can we more effectively tailor our content so that our stories and research have optimal reach and relevance?

The concept of visual literacy within academia has been around for some time, but it is a more recent development that specific academic departments have focused their research more exclusively on digital literacy and pedagogy. One of the champions in this field of study is Michael Wesch at Kansas State University. In his article, "From Knowledge to Knowledge-able: Learning in New Media Environments" (2009), Wesch, who specializes in telling stories using visual assets, states the following,

"This new media environment can be enormously disruptive to our current teaching methods and philosophies. As we increasingly move toward an environment of instant and infinite information, it becomes less important for students to know, memorize, or recall information, and more important for them to be able to find, sort, analyze, share, discuss, critique, and create information. They need to move from being simply knowledgeable to being knowledge-able. "

Wesch points to the fact that networked digital information, be it video or otherwise, is forcing a complete shift in not just how we learn, but is also redefining the act itself of knowing—or, epistemology. The upshot according to Wesch is that we need to "look beyond the framework of information" and embrace new forms of discourse, new ways of accomplishing relationship building and communication. Most importantly, Wesch believes that the potential of video and Web 2.0 technologies is ultimately tied to an attitude that is both willing and committed to this revolution, meaning the change will be primarily cultural as opposed to technological. His online video repository is a case study in and of itself as to how other educators can utilize video and visual modes of communication to engage audience and share research-based content (Footnote #3). Whether or

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not his videos, which have been viewed by tens of millions of viewers (many of whom are students), would quality for promotion and tenure using the guidelines in place at most Extension offices is another matter.

Although it is obvious that stories like Wesch's are popular regardless of gender or age, what is less clear is how Extension agents will become more "knowledge-able" with this type of visual pedagogy. Will it be from the outside in, or the inside out? Will we bring in external "e-agents" (Herring) and digital "architects" (King, 2003) from industry to reshape Extension, or can Extension agents bring about this transformation internally? Can Extension agents broaden their role to include a more intentional inclusion of visual pedagogy?

Before we discuss some possible solutions and provide examples of projects here at Oregon State University that rely on visual pedagogy, let's look at visual literacy as it relates to the general public.

The Popularity of Video

Our media landscape is dominated by video and has been for some time—visual literacy is as important today (and in some respects, as novel) as textual literacy was in the mid 1500s when books became more available to the general population. TV, Tivo, smart phone video, video via game systems: The act of delivering video has for the most part become an irrelevant consideration if we are seeking to understand how best to use video from the standpoint of constraints. Moreover, the sheer volume of video content being pushed into online repositories is mind boggling. Even though 99.9% of what exists on YouTube might be irrelevant to any given user, more than one million videos are uploaded daily to online video repositories. Nielson ratings show that large segments of the population are watching video on these different web-based platforms at least several hours a day (Footnote #4). Cisco systems, the primary manufacturer of networking hardware makes this observation:

"By 2012, Internet video traffic alone will be 400 times the traffic carried by the U.S. Internet backbone in 2000. Video-on-demand, IPTV, peer-to-peer video, and Internet video are forecast to account for nearly 90 percent of all consumer IP traffic in 2012." (Footnote #5)

Who's Watching?

While there is minimal variability based on gender in terms of who watches online video in general, the majority of visitors on the most popular video repository—YouTube—are disproportionately male. The single largest emerging segment of online video viewers is 45-to-54 year olds. What's more, YouTube and Vimeo analytics suggest video repositories are unusually "sticky" web spaces where users' visitation time averages almost 25 minutes per day. (FOOTNOTE #6)

It's About Syndication

Understanding how our clientele interpret visual content is a requirement before we can understand how we should package and disseminate our stories in more visually-enriched formats and media. If we are to have a broader view of how to make our video and photo content available to an ever-growing online clientele, it is essential that we leverage really simple syndication (RSS). Syndication has been used for many years with TV to control the flow of licensed content and help monetize the distribution of video. RSS allows content to be stored in one central location and then pushed to any number of syndication points (usually web pages) that are created by the end-users themselves. When a single video is posted to YouTube, Vimeo or some other repository, the impact of this content is not limited to the number of YouTube page views, but is measured by the number

of feeds, or instances where users are embedding links to this video. Blogs illustrate this concept well as it's not uncommon that the bulk of viewing activity associated with a blog comes via feed activity (users pulling content from the site and embedding this in another web location) as opposed to visitation activity to the site itself. While this concept is already understood by most, it's important to frame the true significance of video reach not only by link reference activity, but also through the lens of RSS feeds and video player link embedding. Because of this new mode of distribution, videos that record millions of views are not a reflection of YouTube's sorting power or even the YouTube brand as much as the end-user's ability to syndicate content of interest via implicit (sending a URL to someone else) and explicit (embedding) reference. At the level of university, department, program, and individual Extension agents must learn to harness the power of web-based syndication with their video and photo content.

Current Examples of Visual Literacy at Oregon State University Extension

Here at Oregon State University Extension, we have created numerous online communities of practice around topics such as gardening, turf science, and new faculty training. Numerous OSU Extension programs also utilize YouTube and Vimeo by posting relevant video and then organizing the content around channels (YouTube), albums and groups (Vimeo) that users can both subscribe and comment to. Others are then able to syndicate this content to other Internet endpoints and extend the reach of our stories.

Our department often promotes the use of small inexpensive video cameras as a simple method to create video content for the OSU Extension YouTube channel. Many cell phones also have video cameras. For those who are interested in integrating their video within an online multimedia package, we offer classes on Pachyderm, which allows one to create online multimedia presentations. We have numerous examples of instructional multimedia produced by Extension faculty using this tool. Our departmental blog has also provided us with an excellent way to share more details about these types of projects with readers around the world; we often embed video and SlideShare presentations in our blog posts.

Flickr is the still-image equivalent of these video repositories and allows one to also set up aggregations of photos, called photostreams, using metatags. Like video, we use these photos in web-based HTML, Flash, or content management system photo galleries, e.g. Drupal. More recently, we have begun to leverage the geotag information associated with our photos, which allows us to place photos on Google maps and utilize tools to laminate images on top of dynamic maps.

While the software that enables communicators to tell stories will continue to change, the principles guiding methodology should not. So, while these examples are often tied to specific tools, understanding the instructional methodology shaping how visual assets are used in these contexts will continue to be essential in assuring our content is both relevant in medium, user preference, reach, and cost effectiveness.

One of the more important influences video is having on our university can be seen in how we organize and prioritize content on our websites. Analytics have allowed us to identify the most popular online documents and to then look for common categories or themes among these documents that reflect user interests. We then think more carefully about how to create web-based portal pages that help us organize this content more effectively and showcase ancillary instructional videos alongside the existing text-based publications. This results in a web-based architecture that organizes content around themes and showcases video in more accessible areas on the webpage. Our OSU

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Extension website leverages this architecture and highlights multimedia in the most prominent locations (http://extension.oregonstate.edu/).

So, how might Cooperative Extension address the aforementioned obstacles and develop more familiarity with visual pedagogy?

Proposed Solutions for Improving the Use of Visual Pedagogy within Extension

- If possible, look for new opportunities to incorporate a focus on visual literacy within profes sional development plans.
- Utilize Web 2.0 communication tools more often to participate with others who are familiar with and are actively using visual pedagogy. Find what works for you as there are many different options: Reading blogs, participating in Twitter discussions, listening to podcasts, and posting and replying to blog entries about this topic can pull one into the larger ongoing dialog about visual literacy. Becoming more familiar with the concept of Per sonal Knowledge Management (Pauleen, 2009) and one's responsibility as an active partici pant in these types of dialogs is a helpful starting place if you're still on the fence with using these types of communication tools.
- Follow (via blog and Twitter feeds) those programs, like Kansas State Digital Ethnography, that are the leaders in this area. Learn from their examples, and where appropriate, use them in your program and content area.
- If you are not already familiar with the concept of "crowdsourcing," do some online searching and become more familiar with the multiplicity of processes and products being developed using this model of participation. Look for opportunities to facilitate volunteerism and program participation using visually-enriched content.
- Work with others on your campus to understand who defines your promotion and tenure guidelines. Then, seek to define the impact of your content delivery methods using appropri ate new media guidelines defined by organizations like the MLA. (FOOTNOTE #7)
- If possible, visit Extension offices across your state. Each one often serves a different audience. Ask questions and do your best to look for those audiences who have not yet been served by online methods of content delivery. Ask yourself how many of your programs or articles can be made accessible using online media that incorporates more visual assets and when possible, analyze your content repository analytics to better understand which topics are drawing the most traffic.
- If you are new to video production, start with producing video using an inexpensive video camera and then look for opportunities to use more sophisticated tools as you develop a greater sense of how to use visual assets to communicate your message. This is a process, so be deliberate, decisive and don't let others convince you video production is only for the "pros."
- Become a connoisseur of web-based video. Spend time viewing recent videos in video repositories like Vimeo. Scan the Internet for other video and multimedia examples tied to your content domain and ask yourself what works and doesn't work when you watch or interact with these examples.

Future Uses of Visual Pedagogy in Extension

In light of the all-too-familiar trends of a globalizing world where access to information is an afterthought, if we hope to remain relevant to our clientele, we cannot ignore the changing profile of our audience. Perhaps more importantly, we need to understand their online preferences and behavior. If we cannot stay ahead of the curve on this issue, our relevance will quickly diminish. Traditionally, factors such as quality, reliability and accessibility have defined our delivery method. We need to continue to prioritize these factors, but include a focus on visually literacy that leverages syndication and crowdsourcing.

What might our Extension future look like if our communication activity is saturated in visual pedagogy?

- We should expect the addition of more online video and photos and more sophisticated means to syndicate these resources.
- The science of telling stories using video and multimedia will continue to mature and departments like the Digital Ethnography department at Kansas State will multiply and will become more influential to those in the communication and education sector.
- Web-based applications will continue to be more intelligently integrated with synchronous and asynchronous video being shot from smaller devices like smart phones. Augmented reality will become more ubiquitous. As this technology develops over the next several years, new ways of overlapping web-based information on top of video will redefine entire industries (LaBelle, 2009).
- The rapid adoption of smart phones coupled with the improvement of GPS and on-board phone video cameras will result in an entirely new niche of "just-in-time" location-based learning. Imagine pointing your video camera at a grove of trees and seeing the names and relevant information, often presented in video format, pop up in real-time on your mobile device viewer.
- Purveyors of science or instructional content who are able to leverage the key principles of visual pedagogy and adapt their communication styles accordingly will grow their online clientele while those who do not will become increasingly more irrelevant.

Conclusion

As this article suggests, Cooperative Extension's ability to remain focused on our audience's needs and preferences depends to a large extent on our ability to understand what they are doing online with video and multimedia—whether we like it or not, much of our future efficacy will depend on our familiarity with online user behavior and preferences. While the concept of whether or not this change can take place internally through professional development or whether this type of change is organizational in nature and will require a change from the outside-in, is outside of the scope of this paper. Having said that, it is obvious that the role of many Extension agents will become progressively more embedded in facilitative activity occurring online, utilizing visual forms of communication. Whether or not we are prepared for this paradigm shift remains to be seen.

Footnotes

1. Alexa.com
2. Garden.org, Garden.com, Food.com

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3. http://mediatedcultures.net/ksudigg/
4. http://blog.nielsen.com/nielsenwire/online_mobile/americans-watching-more-tv-than-ever/
5. http://news.cnet.com/8301-13846_3-10145480-62.html
6. Alexa.com
7. http://www.mla.org/tenure_promotion

About the Author

Chris is the Director of Professional and Noncredit Education at Oregon State University where he manages professional and non-credit programs and provides leadership for continuing education programs focused on workforce training, K-12 and courses for personal growth and enrichment.

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Research

A Semiotic Analysis of a Texas Cooperative Extension Marketing Packet

Leslie Edgar and Tracy Rutherford

Abstract

Semiotic analysis in agricultural communications / education and related fields is largely unexplored territory. This study used semiotics, a theory of the production and interpretation of meaning based on images, to evaluate a Texas Cooperative Extension marketing packet. Photographic and logo images throughout the packet were analyzed by employing descriptive methodology and quantitative content analysis methods to "identify the symbols used in the image and determine their meaning for society as a whole" (Lester, 1995, p. 126). The purpose of the study was to interpret the messages directed to the audience and determine if they matched the perceived meanings. The findings revealed five repeating themes within the 81 images included in the marketing packet. The themes were: messages portrayed, diversity, relationships, exchange of information, and stereotypes. Each image was analyzed for denotative and connotative meaning. Results showed the images portrayed predominately positive messages while logos were neutral. Adult Caucasian females were depicted as the primary age, ethnic, and gender group. The most reoccurring relationships depicted were that of families and a student / mentor relationship. For information exchange, more images portrayed hands-on learning than dialogue instruction. Findings also indicate visual stereotypes were present. Additionally, no messages regarding individuals with disabilities were discovered. This research focused solely on visual analyses, further research is recommended to evaluate Extension's marketing tactics both visually and in print to determine if marketing materials are meeting the needs of the organization and their publics. Additional visual marketing assessments should continue.

Keywords

visual communications, semiotics, Texas Cooperative Extension, marketing, visual literacy

Introduction

The mission of Texas Cooperative Extension is to "improve the lives of people, businesses, and communitities across Texas and beyond through high-quality, relevant education" (Texas Extension, 2010, para 3). Materials and information provided by the Extension service are disseminated to publics through various mediums including newspapers, radio, workshops, direct order, or in-person at county Extension offices. At the time of this research, an Extension office was located in every county in the state, with 250 offices and 1,400 personnel.

Research previously presented at the Southern Region AAAE conferences in the poster session.

Extension's research-based information addresses relevant community issues from a wide variety of areas, including but not limited to: agriculture and natural resources, family and consumer sciences, 4-H and youth development, and community development. The targeted audiences for Extension materials are broad and diverse; spanning all ethnicities, age-groups, genders, and geographical locations represented in Texas. While Extension has traditionally been linked to agriculture, over the past several decades' rural farmers and ranchers have become less of a focus as the primary audience (Schauber & Castania, 2001). In Extension, varying and ever-changing programs bridge the gap between rural and urban, and traditional and non-traditional agriculture. Over the years, Extension's focus has shifted to address all relevant issues within every Texas community.

Nationally, Cooperative Extension programs are experiencing challenges to continued survival, due to changing legislative priorities and budget cuts in these ever-changing economic times (Varea-Hammond, 2004). Challenging times have pushed Extension, in recent years, to look closer at their audiences and to determine how to best market to the diverse publics. Marketing Extension and its services requires diverse methods to reach current and potential clients to broadly increase visibility and understanding of the value of Extension (Varea-Hammond, 2004).

In the mid 1990s, research focused on the Cooperative Extension program noted three areas of focus necessary to increase its marketing potential: client-orientation, coordination of all client-related activities, and goal-orientation (Chappell, 1994). Client-orientation was defined as meeting the wants and needs of constituencies, and Chappell outlined the need for Extension professionals to shift from an internal organizational perspective to the client's viewpoint. The research focused on the coordination of client-related activities; specifically that all Extension persons become aware of client needs and work diligently to determine needs, wants, and interests of its constituencies. Under of the auspice of client-related activities, after needs awareness has occurred, Extension agents must adapt programs to fulfill the needs of the audience as individuals. Chappell's focus on the three cornerstones of marketing-orientation also included goal-orientation. In this area Extension personnel must ensure that clients' goals are being met. Overall, Extension's focus is to meet the needs of its clientele (Boldt, 1988).

In later discovery that applied Chappell's cornerstones of marketing-orientation, researchers discovered the need to train Florida Extension marketing personnel on specific areas. The marketing areas included "how to establish a marketing / promotions program, how to design displays/exhibits, and how to design brochures" (Telg, Irani, Hurst, & Kistler, 2007, para 36). Skelly (2005) outlined five Ps to consider when establishing effective marketing in Extension: product, price, place, promotion, and people / partnerships. Effective and consistent marketing materials and messages can provide an opportunity for Extensions' continual efforts to attract new and retain current target audience groups.

This study looked closely at promotion, using the 2006 Texas Cooperative Extension marketing packet. Agricultural communications researchers (Doerfert, 2003; Miller, Stewart, & West, 2006; Tucker, 1996, 2004) have noted the need to examine literature in an effort to improve research. Marketing research focused on Extension publications is largely unexplored territory. Yet, marketing plays a critical role in program longevity and success.

"Visual images are powerful in their occupation of the publics' time and the shaping of how we process [meaning]" (Sadler-Trainor, 2005, p. 9). Additionally, visual images play an important role in society due to the messages these images can portray, both positive and negative, regarding social class, cultures, etc. (Rhoades & Irani, n.d.). Photographs influence viewer's emotions more often than

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words, and pictorial stereotypes can be perceived as fact (Lester, 2005). In marketing packets, photographs and visual components can strengthen a message beyond what words can describe alone. However, visual messages can also communicate inaccurate information.

Due to the impact images have, not only on market branding (Park, Jaworski, & MacInnis, 1986) but also on customer appeal and satisfaction (Jenkins, 2003), there is a need to complete research focused on images associated with marketing agriculture and agricultural programs. Customer satisfaction with a company's products or services is often seen as the key to a company's long-term competitiveness and success. Research indicates that customer satisfaction begins at the marketing phase prior to purchase (Hennig-Thurau & Klee, 1998). Therefore, it is important for Extension to assess its marketing techniques to ensure customer satisfaction, continued longevity, and future growth.

Guiding Models and Theory

"What you experience and what you remember are products of a mind that actively thinks, with images and words, the mental, direct, and or mediated visual messages you imagine or experience in your life" (Lester, 2005, p. 69). Images are essential to developing an understanding, and can be read, construed, and used in both different ways and multi-functions, like words (Weber, 2006). An image is a visual form that takes on meaning through the perception and interpretation of the viewer. Semiotics is one method of quantifying this process via a visual content analysis. "Images can be used to lie, to question, to imagine, to critique, to theorize, to mislead, to flatter, to hurt, to unite, to relate, to narrate, to explain, to teach, to represent, and to express the full range of human emotion and experience" (Weber, 2006, p. 1).

Semiotics is a theory of the production and interpretation of meaning. The basis of semiotic theory focuses on meaning as a result of acts and objects, which is a function of "signs" in relation to other signs (Chandler, 1994). The system of signs is comprised of meaning-relations that can exist between one sign and another. In simple terms, a sign is anything that stands for something else, or even simpler it is a sign if it has a meaning beyond the object itself (Lester, 1995). Sign relations can be identified within images and can be used to add meaning and analysis to photographs or images. Signs are indications of how the message is communicated to the viewer.

Although signs were first proposed by Greek philosopher and linguist Augustine in A.D. 397, the theory of Semiotics is credited to F. de Saussure and C.S. Peirce. However, many subsequent theorists have added to semiology and semiotics: L. Hjelmslev, R. Barthes, G. Bateson, J. Lacan, S. Freud, B. L. Whorf, B. Malinowski and others (Lemke, 2006). Of those, Roland Barthes is the most well-known for bringing semiotics into the visual communications field.

Charles Sanders Peirce formulated three different types of signs: iconic, indexical, and symbolic. The easiest to interpret of these signs are iconic signs, also known as icons. An example of an iconic sign is the image of a girl or boy above a restroom, signifying which gender uses the facility. Images that represent a logical, commonsense connection to the thing or idea they represent are known as indexical signs. An example of an indexical sign could be smoke released from a smokestack above an industry building, the smoke then represents the pollution generated by company. The most abstract of the signs are symbolic signs. Symbols have no logical or representational connection between the image and the thing they represent. These connections must be taught and vary due to social and cultural interpretation. Also, symbols usually evoke a deeper emotional response from viewers than do iconic or indexical signs. Flags, gestures, and religious images are examples of symbols (Chandler, 1994, 2002; Lester, 1995).

The use of semiotic theory is one way an image's "message" is evaluated to determine the reality it portray. A person lives in a world shaped by decoding signs found within images, actions, and words (Saussaure, 1959). The use of signs was further refined by Ferdinand de Saussure who theorized the idea that signs are used to communicate messages. Saussure divided signs into signifiers — the drawing, sound, or direct or indirect image (an image where a sign can be expressed), and the signified — the meaning communicated by the signifier. Social and cultural rules, established by a society, over time dictate the concept or emotion portrayed by a sign. When looking at the way signs are communicated we need to look at both the emitter and the receiver. The emitter is the person who sends (encodes) the sign and the receiver is the person who translates (decodes) the sign. Successful communication occurs when the transmitter decodes the sign the way the emitter intended (Chandler 1994, 2002; Lester, 1995).

The categorization of images through their connotative and denotative values can be attributed to Roland Barthes (Leeuwen & Jewitt, 2001, p. 94). Barthes contributions have focused on "the chain of associations or signs that make up picture's narrative" (Lester, 1995, p. 65). Signs in an image are often dictated by the style of the photographer. Signs in images are presentational and are often not as controlled as text. When combined with text, images dominate words and are processed in the brain to create perceptions about the subject (Barry, 1997).

The interpretation of messages from images is an active process. Lester (1995) wrote that the viewer must actively concentrate on the subject of the photograph rather than just observing the photograph in order to find the meaning or the message. Semiotic methodology is used to provide researchers with information about the content of images and provide an understanding of how the audience would interpret the image and the effect it could have on building perceptions (Norwood, 2005).

This study examined how photographs were used by the Texas Cooperative Extension service to market their organization. A visual content analysis, framed by semiotic theory, to determine the types of messages the photographs may suggest about the Extension program guided the study.

Purpose and Objectives

The purpose of this study was to assess the images and visual intentions of the photos used in the 2006 Texas Cooperative Extension marketing packet. The analysis of image meaning was necessary to determine possible intended messages sent to Texas Cooperative Extension audiences, and if the intended meanings of the photos were appropriate for the audience. The objective of the study was to identify specific messages created in the Texas Cooperative Extension marketing packet.

Research Methods and Procedures

Semiotic analysis is a content-driven approach to assessing visual images and their potential impact on individual perception. A method of assigning complex meaning to the objects we see daily. Furthermore, "analysis of a picture involves identifying the symbols used in the image and determining their meaning for the society as a whole" (Lester, 1995, p. 126).

This study employed quantitative content analysis methods based on semiotic theory to analyze photographs in the Texas Cooperative Extension marketing packet. The marketing packet included two glossy brochures, an educational booklet regarding programs, and miscellaneous stationary.

Institutional semiotics retains the meaning of artifacts by recognizing the heritage and cultural influences employed in imagery by organizations and businesses (Arnold, Kozinets, & Handelman,

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2001). Institutional semiotics recognizes that meaning and interpretation are social constructions influenced by the understanding of the researcher. It is the understanding of the organization that gives context to the images used in marketing materials and provides the frame for analysis.

There are several ways to categorize photographs within the theoretical framework of semiotics. This study focused on the denotative and connotative aspects of images to determine meaning. Denotation is the first layer of analysis. It is what you immediately see when looking at the image (Lester, 1995). It is fairly straightforward. For example, the denotative values of a photo of a house are the house, painted white, the landscape, a flagpole, and anything else apparent in the image. The denotative value can also be thought of as the sign of an object (Lester, 1995).

The second layer of analysis is connotation. This is what the "objects in the photo 'stand for'" (Leeuwan & Jewitt, 2001, p. 94). This is the associative value, the meaning people gain from the image. In the previous example, the connotative values of the photo could be that the house in the image is the White House, a symbol of our president and our national government and it represents democracy. The connotative value is also known as the signifier of an object (Lester, 1995).

Additionally, this study employed a content analysis design, which can be used to give researchers insight into problems or hypotheses that can then be tested by more direct methods. Content analysis is a systematic, replicable technique most known for compressing many words of text into fewer content categories based on explicit rules of coding (Berelson, 1952; Krippendorf, 1980; Weber, 1990). However, it can also be used to analyze images and photographs (Weber, 1990). Content validity was maintained using previous research as a guide.

Photos within the marketing packet were numbered to assist in content analysis. Photo collages were grouped for analysis and single photos were analyzed individually. Connotative values (positive, negative and neutral) for each photograph were noted and denotative descriptions were used to create thematic groups. The principal investigator and a peer independently reviewed and analyzed each image. The researchers then compared analysis notes and reconciled differences via negotiations (Weber, 1990). The study maintained inter-coder reliability and researcher coding was assessed using at least 20% of the analyzed images. Final reliability was calculated using a random sample of 10% of the analyzed images. Reliability was assessed using Spearman's rho. Reliabilities met or exceeded the minimum standard of .70 (Bowen, Rollins, Baggett & Miller, 1990; Tuckman, 1999).

Results - Marketing Analysis

This study was restricted to photographic and image content within the Texas Cooperative Extension marketing packet; the narrative portion of the marketing packet was excluded from the analysis.

Table 1 shows the types of messages portrayed connotatively within the photos and logos of the Texas Cooperative Extension marketing packet. The majority of the photographs were positive whereas the majority of the logos were neutral.

Table 2 depicts the denotative, demographic variation within the photos exhibited in the Texas Cooperative Extension marketing packet. The majority of the people represented in the photographs were Caucasian females. Adults were more prominent than adolescents, seniors, or children. No individuals with disabilities were represented and there were no religious affiliations denoted.

The photographs were classified into the denotative theme of relationships and the relationships they represented: Extension agent, family, friends, and student / mentor. Family and student / mentor were the strongest relationships discovered and these classifications are displayed in table 3. Not all

photographs represented a relationship. Only those exhibiting a relationship were quantified within the table.

Table 1
Messages Portrayed in Photographs and Logos in the Texas Cooperative Extension Marketing Packet

Messages Portrayed in Photographs

Category	*n*	%
Positive	20	60.6
Neutral	12	36.4
Negative	1	3.0
Total Photographs	33	100

Messages Portrayed in Logos

Category	*n*	%
Positive	6	42.9
Neutral	7	50.0
Negative	1	7.1
Total Logos	14	100

Finally the photographs were classified into types of information exchange (denotation). Not all the photographs within the marketing packet represented information exchange. Two categories were developed in this area: information exchanged via teaching and learning and hands-on learning. Table 4 shows the exchange of information, with hands-on learning being the major exchange category.

The researchers identified denotative and connotative signs within the photographs to determine how publics viewing the Texas Cooperative Extension packet could interpret the photograph. The interpretation could then be compared to the intended messages based on the researchers understanding of Extension messages and audiences. Through examination of each photograph, certain signs were identified and common themes emerged. These themes are delineated in the tables above with the exception of stereotypes and are noted here as messages portrayed, diversity, relationships, exchange of information, and stereotypes.

Denotative signs of smiling faces, personal interaction, and group cohesion were interpreted in the positive connotative signs of happiness, confidence, interest, close-knit, encouraged, proud, engaged, in a happy environment, a part of something great, not impoverished, middle to upper class, well-educated, and professional. A viewer would look at these photographs and positively react to the Texas Cooperative Extension program.

Messages portrayed within neutral photographs showed people not smiling but engaged in tasks, involved in activity without emotional facial expressions, working to get a task accomplished – no one is happy but all seem to be working together, and an Extension agent teaching women – but no one in the picture has a facial expression but all seem engaged and involved.

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Table 2
Demographics Represented in Photographs and Logos in the Texas Cooperative Extension Marketing Packet

Demographics Represented in Photographs		
Gender Diversity	*n*	%
Female	56	69.1
Male	25	30.9
Total	81	100
Ethnic Diversity	*n*	%
Caucasian	43	53.1
African American	16	19.7
Hispanic/Latino	14	17.3
Asian	3	3.7
Other (Indian, Middle Eastern, Native American, etc.)	5	6.2
Total	81	100
Age Diversity	*n*	%
Senior	15	18.5
Adult	32	39.5
Adolescent	23	28.4
Children	11	13.6
Total	81	100
Disabilities	*n*	%
None	0	0.0
Religion	*n*	%
None	0	0.0

Negative messages were portrayed including a photograph of what appears to be an older, male Extension agent; it is a side profile face shot but he is not smiling, he looks professional but may not be approachable.

Table 3
Relationships Represented in the Photographs in the Texas Cooperative Extension Marketing Packet

Relationships	*n*	%
Extension educator	6	19.4
Family	9	29.0
Friends	7	22.6
Student/Mentor	9	29.0
Total Pictures	31	100

Table 4
Exchange of Information Represented in the Photos of the Texas Cooperative Extension Marketing Packet

Information Exchange	*n*	%
Teaching and Learning	16	47.0
Hands-on Learning	18	53.0
Total Pictures	34	100

Diversity is another major denotative theme developed in the research. Diversity was quantified into five additional areas: gender, ethnicity, age, disability, and religion. Analysis of the photographs showed that the Extension program attempts to portray support of more female than male involvement; using photographs that maintain female involvement almost 70% of the time. The marketing packet also uses predominately Caucasian individuals; sending the message that Extension still mainly deals with Caucasian individuals while purporting to be a diversity-rich organization. Messages within ethnic diversity were multicultural, ethnic diversity, and ethnicity. Photographs exhibit that age diversity exists, yet Extension deals primarily with the adult populace. Messages within age diversity include child involvement, children and youth are important to Extension, adult involvement, senior citizens learning from agent, all generations and ages, and spanning generations. No photographs were used to represent individuals with disabilities or religious preference, which portrays a message that the Extension program does not support religious preferences or people with disabilities. These could have extremely negative connotations on the publics within Texas.

The third theme emerging from the message analyses was relationships. There were four main categories of relationships maintained in the photographs: Extension educator, family, friends, and student / mentor. Within the Extension educator relationship category messages represented were dependable, knowledgeable, teaching, overseeing, providing hands-on knowledge, exemplifying agriculture, working with an agent, and anyone can be an Extension agent. Messages portrayed within family relationships were family (mother and children), mother / child, sister / brother, father / mother / children together, and a man who could be someone's dad. A viewer would look through

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these photographs and decipher that Extension values family, assists families, encourages family involvement, and offers programs to meet the needs of all family members. Messages were also portrayed within friend relationships such as building relationships, connecting people, supporting relationships - regardless of ethnicity, friends, close-ties, close associates, friends or associates who enjoy working together, and trusting. The last category is the student / mentor category and there was some overlap in this category with the Extension educator categories. However, in this category a person depicted in the photograph exhibited no signs they were an Extension agent, merely there were signs of a student / mentor relationship. Messages portrayed in the student / educator category were learning / teaching, knowledge exchange , learning, educating, teaching, involving, engaging, supporting, enjoying learning and participating as well as teaching, encouraging, and scholarly, but not formidable, men teaching woman, and expertise-oriented.

The fourth delineated theme was exchange of information. In this theme two distinct categories were noted: dialogue instruction and hands-on learning. Messages within dialogue instruction were knowledgeable, information exchanging, teaching, learning, engaging, learning and teaching occurring, demonstrating, books-learning, encouraging classroom environment, education is the centerpiece, and men conducting while children are receptive. Messages identified in the hands-on learning category were hands-on knowledge gaining, getting your hands dirty, using your hands while learning, physical involvement with the learning, boys building, outdoor lawn educating, working with animals, working with plants, working with vegetation, working in the yard, working with feed rations, outside learning, and volunteer and help while learning.

The last identified theme in the analysis was stereotypes. Messages portrayed in this category were family portrayal including gender roles (a father teaching the son and a mother teaching the daughters) and men teaching women (male Extension educator teaching two women). Stereotypes also included ethnicities: African-American woman with the appearance of gossiping at a rummage sale (two African-American women conversing while looking through a box with miscellaneous items), agriculture being taught by a man to women, and a mother feeding a child. Additionally, a photograph of an older Caucasian male Extension agent was the only Extension employee represented in the packet (seven photographs). Therefore, no women Extension agents were represented. However, women were present in the photographs including: a woman in a greenhouse working with plants and a woman teaching young children. Lastly, a final stereotype was noted in a photograph of young adult males wearing cowboy boots and starched pressed jeans working with a lamb while a woman stands in the background watching (providing the assumption that working with livestock is a man's job).

All messages in this category detract from the credibility of the marketing packet and leave the viewer questioning Extension's motives, programs, and capabilities. There is also credibility lost with the reuse of photographs. One specific photograph can be seen four times within the Texas Cooperative Extension marketing packet. This photo and others were also graphically transposed, which diminishes the credibility to the publication and organization because logos on shirts appear backwards to the viewer.

In conclusion, the Extension marketing packet exhibits mostly positive messages to its publics. The contents of the packet represent diversity in gender, ethnicity, and age. Yet, it lacks messages identifying their service to individuals with disabilities and/or religious preference. The images used in the packet send messages that Extension values a variety of relationships as well as an exchange of information. However, messages are limited and no identification is made to information being

disseminated from land-grant institutions to the citizens of Texas, to meet their identified needs. Lastly, stereotyping is prevalent throughout the marketing packet. These images and messages have the potential to hurt relationships and may not be sending a positive message about Extension.

A summary of each of the three main brochures found within the packet follow. Stationary consisted of the Texas Cooperative Extension logo and three photographs, the analysis on these images were completed within the context of the three main brochures since the images were repeated in other print media.

Real Learning for Real Life Brochure Summary

The Real Learning for Real Life glossy brochure was overwhelmingly representative of the themes relationships and learning / teaching. Eight of the twelve photos used in this brochure depict families, friends, or mentors and students representing a variety of age and ethnic groups. The diversity among the photos supports Extension's claim to being "open to all people without regard to race, color, sex, disability, religion, age, or national origin," with the exception of peoples with disabilities or varying religious preferences.

The family and friends photos create a positive message because all subjects are smiling, hugging, and interacting with each other in a supporting manner. The images are representative of different types of relationships: friends, parents, grandparents, grandchildren, husband and wife, brother and sister.

The educational photos have a formal tone creating a neutral message. The educators in the photos are portrayed as knowledgeable and professional by their dress, environment, and position in relation to the students. The educators are typically dressed in either collared, button-up shirts or polo tees with a professional logo on the chest. Unlike the personal family and friends photos, the Extension educator is portrayed either alone or with a certain amount of space between themselves and the learners, adding to the formality of the photo and the neutrality of the message. When learners are present, they seem to be listening attentively to the educator. One educational photo breaks the trend because it portrays an adult woman with two young children in a classroom environment. In this case, the educator breaks the barrier between the teacher / students by sitting between the students with her arms around them as she demonstrates coloring.

Growing People, Ideas and Yourself in Extension Brochure Summary

The Growing People, Ideas and Yourself in Extension glossy brochure presents photos of happy adults interacting with nature, kids and animals. Three of the five photos depict a student and educator relationship. The subjects are diverse in ethnicity and gender. In this brochure, most photograph subjects are adults.

The overall message portrayed by the brochure via the photographs is that the average well-educated man or woman can be happy and confident working for Extension. This is shown through denotative signs: such as well-dressed people smiling in photos assessed as positive. The majority of the photos in the brochure are positive. The connotative signs include positive, exchanges of information from confident educators to receptive students.

In this brochure, the educators are all male. Women are presented as confident and interested, with the exception of one woman in a photo of young men fitting a lamb for show. She is not shown completely, and appears to have no purpose for being in the photo. There is one photo of an adult man (educator) interacting with children, and the children appear receptive to the educator.

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Real Learning for Real Life Educational Booklet Summary

The Real Learning for Real Life educational booklet is a matte two-color document used to provide information regarding Texas Cooperative Extension's educational programs and offerings. Although the book provides valuable information regarding Extension's programmatic offerings, it has the appearance of low cost and continues the theme with haphazard placement of photographs and images. The colors used are neutral and not distracting, yet they are boring and offer little encouragement to open the booklet and examine its contents. In some areas, logos are distracting and confusing because of awkward and random placement, and the publication leaves the reader questioning the programs, and, therefore, Extension as a whole.

The images within the booklet are predominately positive; portraying happy, confident, engaged people; focused on diversity depicting males and females, multi-ethnicities, and individuals of all ages; sending messages regarding the importance of relationships; and the exchange of information. However, image stereotyping plagues the booklet, decreasing credibility and trustworthiness of Texas Cooperative Extension. Of the three inserts used within the marketing packet the *Real Learning for Real Life* educational booklet is by far the least professional and demands the most focus for future improvement.

Discussion and Future Recommendations

This content analysis based on semiotic theory to assess the Texas Cooperative Extension marketing packet is inherently incomplete because it excluded the materials text, which would provide additional context. Therefore, the researchers realize it is possible that the narrative portion of the Extension marketing packet may have eliminated some of the weaknesses and stereotypes discovered in this semiotic, content analysis. However, the scope of this research was not to focus on the text, but to focus solely on image analyses.

The findings indicate that even though the Extension marketing packet maintains predominately positive images and logos, the selection of photographs can have a negative impact and place both credibility and trustworthiness at risk. Research notes that individuals base meaning from images (Lester, 1995, 1996, 2005, Barry, 1997; Chandler, 1994, 2002; Weber, 2006); therefore, it is important that agricultural agencies and services send appropriate image-based messages to their audiences.

Based on the results of this study, programmatic and research recommendations can be made. This study found there is a need for the Extension organization to refocus their marketing materials by utilizing photographs that support the organizational mission, values, and audience. Varea-Hammond (2004) noted Extension had an evident need to focus on proper marketing techniques to allow Extension to increase visibility and value. It is more important than ever for Extension to improve marketing techniques, and a part of those improvements should focus on adjustments to photographs and logos used within their marketing packet. As Weber (2006) stated, "Images can be used to … explain, to teach, to represent..." (p.1). Every image used in a publication should explain, teach, and represent Extension to its audiences in a positive and inclusive manner. Additionally, Telg et al. (2007) noted the need to train Extension personnel in how to design brochures and this research supports the need to add visual analysis and understanding on how images communicate meaning to future training.

Furthermore, there is a need for the photographers and graphic designers to be knowledgeable regarding Extension and their subjects and actively choose photographs free of stereotypes to eliminate potential credibility and trustworthiness issues. Not every employee has a background or

extensive knowledge about Extension, therefore it is important to emphasize the institutional mission, values, and goals to be communicated through selected images. Training or additional training in semiotic meaning and analyses would be beneficial to personnel working on marketing, to make designers more aware of the biases portrayed in specific images and logos. Awareness of how signs are interpreted by audiences gives more power to the designers and the organizational message.

Although agricultural communications researchers (Doerfert, 2003; Miller et al., 2006; Tucker, 1996, 2004) have expressed a need to examine the literature in an effort to improve research, little research on visual analysis and more specifically visual analysis in marketing exists. This research was a first step in highlighting the importance of both image-based and marketing assessment research in agricultural communications. Additional, inquiry should continue in these areas.

Because images impact market branding (Park et al., 1986) and customer appeal and satisfaction (Jenkins, 2003) it is important for Extension and other agricultural services and programs to realize the importance of analyzing images used in marketing. An inappropriate, incorrect, or digitally manipulated photograph, including transposing images, could have devastating economic impact on the company and/or agriculture. Additionally, since customer satisfaction begins prior to purchase (Hennig-Thurau & Klee, 1998) it is important for Extension to continue to strengthen their marketing techniques to ensure customer satisfaction.

Future research should continue to look at Extension's marketing tactics both visually and via text to determine if the information is meeting the needs of the organization and their publics. Furthermore, additional image-based research should be completed on all image media produced by Extension, not only in Texas but throughout the United States, to determine if images used are free of biases and meeting the needs in which they were intended.

Research must be conducted to determine the direct effect images, used in Extension publications, have on perceptions. Viewers interpret messages of photographs based on their own experiences, prior messages, and stereotypes. Extension throughout the United States would benefit from determining how different publics interpret visual messages used in marketing their organization. In a larger scope, research to determine visual impact on agriculture and agricultural programs could prove successful in future marketing regimes.

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Salmonella and the Media: A Comparative Analysis of Coverage of the 2008 Salmonella Outbreak in Jalapenos and the 2009 Salmonella Outbreak in Peanut Products

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Abstract

The purpose of this study was to catalog and compare data from the coverage of two different Salmonella outbreak events in the United States through the lens of framing theory. Using qualitative content analysis, the transcripts of television newscasts that covered the 2008 Salmonella outbreak in tomatoes and jalapenos and the 2009 Salmonella outbreak in peanut products were researched and analyzed. These transcripts were taken from ABC, CBS, NBC, and CNN for both outbreaks. The researchers determined that while the manner in which the stories were framed was similar in some respects, such as story presentation and attitudes, there were also differences, particularly in regard to interview sources used. Tomato growers were used as sources in the 2008 outbreak, but peanut farmers were not used in the 2009 outbreak, where victims and politicians were favored. However, it was determined this had no overall effect on the accuracy, fairness, or overall economic or social impact of the stories presented.

Keywords

salmonella, media coverage, framing theory

Introduction/Theoretical Framework

The Food and Drug Administration (FDA) began investigating a possible foodborne illness outbreak in April 2008, after 57 cases of *Salmonella*, had been reported in Texas and New Mexico (U.S. Food and Drug Administraion, 2008, June 3). *Salmonella* is a bacteria that naturally occurs in some types of food products, such as meat (including poultry), raw milk and eggs, and fresh produce (Medeiro, Hillers, Kendall, & Mason, 2001; PFSE, 2006). The 2008 outbreak led to 1,440 individuals becoming ill by the end of August in 48 different states and Washington, D.C. (Alonso-Zaldivar, 2008). The government originally believed that tomatoes were the cause of the outbreak, but the FDA stated in late July 2008 that the cause was actually jalapeno and serrano peppers that had been grown in Mexico using water contaminated with *Salmonella*. Despite this statement, the United States tomato industry lost a reported total of $250 million before the end of the outbreak and blamed the government for being spotlighted during the crisis on what they felt was poor evidence (Alonso-Zaldivar, 2008).

In early 2009, approximately 1,800 peanut products were recalled due to a threat originating from Peanut Corporation of America (PCA) plants. These products, which had been contaminated with *Salmonella* bacteria, caused 654 cases of illness in 44 states, nine of which lead to death (Centers for Disease Control [CDC], 2009). The contamination occurred in peanut paste and peanut butter that had been produced by PCA and then shipped to many outside food production companies throughout the country (FDA'S Investigation, 2009). In the case of *Salmonella* contaminating peanuts, the roasting process kills all bacteria, and no *Salmonella* should be present afterward (National Peanut Board, 2009). FDA investigations into PCA found there were places bacteria were present in the processing facilities which could have contaminated the peanuts after they had been roasted (FDA's Investigation, 2009).

Due to the large scale distribution of the peanut paste and peanut butter products, food production companies recalled many types of products. These ranged from snack items like ice cream, cookies, trail mix and crackers, to other products such as pet treats. Though some of these recalls were precautionary in nature, others were spurred by the fact that those manufacturers had used PCA products. A side effect of the recalls was a drop in jarred peanut butter sales, even though jarred peanut butter had not been affected by the bacteria or any of the recalls. Jarred peanut butter sales dropped by 22%, with the U.S. peanut industry reporting losses of around $3 billion (L. Kennedy, Texas Peanut Producers Board, personal communication, January 18, 2010).

Outbreaks such as these are a concern for the agriculture industry; when food safety is in the news, food scientists may be at a loss to get their message to the public. Studies have shown that environmental and health activists are quoted in the media five times as often as food scientists (Anderson, 2000). The same study found that reporters and scientists may have problems communicating, as few reporters have extensive training in science and few scientists have training in communicating with reporters in a manner that explains their viewpoints in a simple, clear language. This may lead to reporters getting scientific facts wrong and scientists being nervous or reluctant to speak with reporters in the first place. This can lead to incorrect information and misinforming the viewer or reader.

This can become an issue when considering that food safety stories are often high-profile. Research suggested that every foodborne illness outbreak, major or minor, is reported in the media (Riddle, 2007). The fear of foodborne illness keeps these stories in the media due to the perceived threat from pathogens that cannot be detected by sight or smell. The outbreak of *E.coli* in Spinach drew media attention, and it has been determined that the media has paid particular attention to food safety stories since that time (Hanacek, 2007). This combination of factors can lead to conflicting news stories about food safety when they provide information that comes from non-scientific sources and viewpoints from a variety of individuals. It is important that the agriculture industry take note of these factors and the ways that messages can differ even from story to story within the same category. To that end, this research study was conducted.

Framing Theory

Framing theory is "a central organizing idea or story line that provides meaning to an unfolding strip of events" (Gamson & Mogdigliani, 1987, p. 143). Framing theory explains how journalists may choose certain elements of a story and present them in a way that places more emphasis on those parts of the story (Entman, 1993). This study uses Scheufele's (1999) model of framing effects (see Figure 1), more specifically the top half of the model, to analyze the media frames presented during both outbreaks and compare them to one another.

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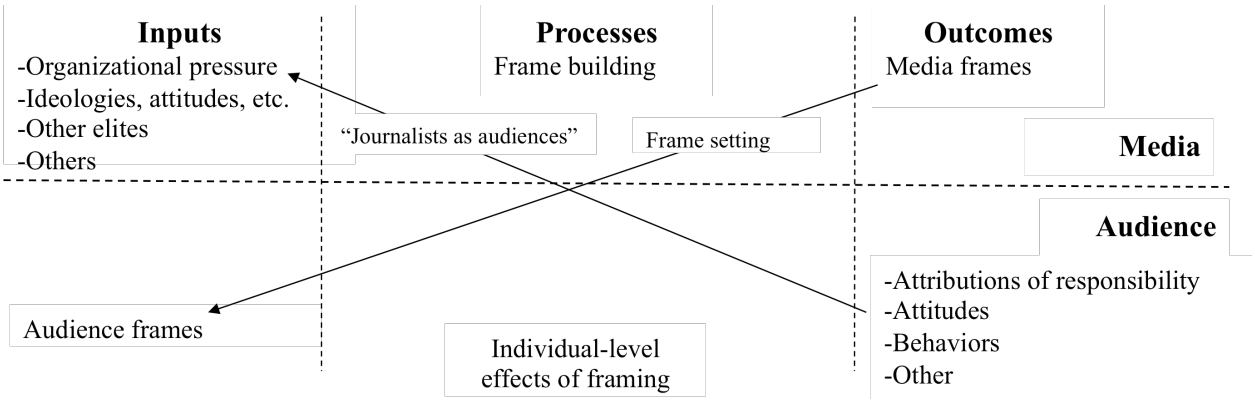

Figure 1. Model of framing effects (Scheufele, 1999).

The top half of this model explains inputs which affect the framing process. Factors such as organizational pressures and ideologies can have an impact on how messages are framed. Next are processes, which details exactly how messages are framed by the media. Finally, we see the outcomes of those media frames, which are present in the finished stories and what aspects of those stories were chosen or altered.

While reporters may choose frames to use while constructing a story, they do not always frame a story intentionally; constraints from various sources may influence the story's angle or tone. This refers to the input section of Scheufele's model. These inputs can include organizational management, a reporter's own judgment, the writer's opinion about the audience, and the situation in which the story occurs (Neuman, Just, and Crigler, 1992). In addition to these factors, which are fairly close to a reporter, there are outside factors that may affect the frame of a story, such as interest groups, social groups, and activists, who may influence journalists to report a story in such a fashion as to present their own individual frames (Baran & Davis, 2009).

This study focused on how the frames used by reporters in two different food safety crises compared to each other and where contrast was found. Of particular interest in some of the data collection were the influences on framing from outside sources, such as the interest groups and social groups listed above, and how these influenced the overall tone of the stories, both singly and compared to one another.

By using the top half of the model, this research seeks to explain the inputs that might impact the framing of these food safety issues, such as organizational pressure; the framebuilding processes undertaken during the creation of those stories; and the outcomes of those framing efforts, such as how organizations were portrayed in stories that were presented on television.

Purpose and Objectives

The purpose of this study was to examine media coverage of the *Salmonella* outbreaks in 2008 and 2009 and then compare and contrast that data using framing theory to determine how the coverage differed between the two outbreaks and where similarities were found. The overall goal of this research was to determine how the differences in the stories changed the frames used and the overall feel of the stories the reporters presented, despite the overall similarities (both stories being food safety crises dealing with *Salmonella* bacteria).

If communications researchers know how reporters choose to frame messages, public relations practitioners can provide more accurate information by tailoring their provided information in a way that will make its usage more likely. Knowing how news stories differ from topic to topic, yet stay the same, can help prepare these practitioners for similar crises where stories may be tailored to provide different types of information.

Four research objectives guided this study:

1. Determine how the two *Salmonella* outbreaks were framed by ABC, CBS, CNN, and NBC news networks.
2. Determine how the individual sources used by these networks affected the framing of both crises.
3. Determine how the frames used were similar between the two crises.
4. Determine differences that appeared in the framing of the two crises.

The research was conducted by analyzing transcripts of news stories that covered both *Salmonella* outbreaks. A limitation present in the research is a lack of analysis of video clips; however, by the time the research was conducted, most of the video clips covering the material had been removed from Web sites, and obtaining the material through other methods was not feasible.

Methodology

The data were collected and analyzed from both outbreaks by utilizing qualitative content analysis. Qualitative research is based on the search for meaning and context first and foremost; the researcher often serves as the instrument of analysis, an inductive strategy is preferred, and a descriptive outcome is reached (Merriam, 2002). Through qualitative research, researchers try to understand why things are the way they are and place individual factors, people, or circumstances into a greater context. It is also preferred when a detailed and rich account of an issue is needed (Creswell, 2007). In this way, it differs from quantitative research, which primarily seeks to determine the cause of particular phenomena and then to generalize and predict.

Content analysis was chosen as the type of qualitative research best suited for this study. Content analysis for this study involved selecting relevant items, selecting parts of those items deemed relevant to the research questions, and coding those selections with descriptive tags. The coded items were then organized.

For both outbreaks, the researchers chose specific time frames that would allow for the collection of transcripts that covered the entire crisis. For the jalapeno crisis, a Lexis-Nexis search was employed with a timeframe of May 1, 2008 to October 1, 2008, and for the peanut outbreak, a timeframe of December 1, 2008 to April 1, 2009 was used. In both cases, the keyword '*Salmonella*' was used on the Lexis-Nexis search engine to obtain as many relevant transcripts as was possible. Transcripts were gathered from the ABC, CBS, CNN, and NBC news networks for both crises using this method. In both cases, it was deemed appropriate to use national news sources since the outbreaks covered multiple states. Duplicate stories were removed from the data set, and due to the data sets for each outbreak being of moderate size, each story was analyzed by the researchers. The 2008 outbreak in jalapeno and Serrano peppers produced 71 stories for analysis, and the 2009 outbreak in peanut products produced 101 stories. These numbers reflect the number of stories obtained after duplicate and irrelevant stories had been removed from the data set.

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Individual stories were analyzed using a coding sheet developed by the researchers. The categories on this sheet were loosely based on a study conducted by Ashlock et al. (2006) that covered the mad cow crisis. The sheet included the network, the total number of words in the story, the air date of the story, types of sources used, the overall tone of the story (positive, negative, or neutral), and prominent frame(s). Frames were recorded by the researchers as they emerged in the individual stories.

Two of the researchers coded each article according to the sheet independent of each other, then met to reach a consensus on each story that was coded. Though the researchers agreed on 95% of the coding, the consensus was still used to ensure that the data presented was consistent throughout the research. Accountability was enforced by implementing an audit trail consisting of all transcripts used and all coding sheets used by both researchers for both outbreaks. Reflexive notes were collected by two of the researchers, which were used to aid in further data analysis.

The researchers have backgrounds in agriculture and consider themselves to have positive attitudes toward American farmers. Though this is recognized as potential bias, conscious effort was made to avoid applying this bias to the research process. In addition, the researchers preferred different national news networks for their primary news source, which helped to prevent additional bias in the form of favoritism.

For the 2008 crisis, ABC aired 17 stories, CBS aired 16 stories, CNN aired 24 stories, and NBC aired 14 stories. Some of NBC's stories were aired twice, once on the Nightly News and once on the Today Show, which lowered their overall story count.

For the 2009 crisis, ABC aired 30 stories, CBS aired 31 stories, CNN aired 11 stories, and NBC aired 29 stories.

Findings

Findings in Relation to Research Objective 1

2008 Salmonella Outbreak

The framing of the 2008 outbreak began with the mystery as the story. Many of the early stories focused on how the true source of the *Salmonella* bacteria was unknown. Over half of the stories (n = 50) focused at least partly on how the source of the bacteria was still a mystery.

When analyzing additional frames, the stories were split up into whether the overall tone was positive, negative, or neutral. The most common frame was criticism of government entities (n = 29), primarily the FDA, but occasionally the President or some aspect of the government's import regulations. CNN's had the highest number of government-negative stories for a single network (n = 13).

While the investigation was ongoing, 23 stories about tomato farmers aired across all the networks. Of these, 20 were positive in nature—they showed support of the farmers themselves. Of these 23 stories, 12 were aired by CNN, of which 11 were positive. The stories in support of the growers focused on how upset the farmers were with government entities and how some were financially distressed by being unable to sell their crop.

Four stories were presented by CNN that negatively framed importing produce from Mexico. Another story on NBC covered the same topic but was presented in a neutral fashion. CNN went into greater detail on measures such as country of origin labeling and food tracking systems.

The researchers identified themes in the stories that could not be considered a true frame. Of these themes, informational stories were the most popular (n = 19). All of these stories had a neutral tone, and primarily presented facts of use to the public, such as the FDA's warning, lists of *Salmonella*

symptoms, proper food preparation techniques, lists of tomatoes to avoid, states that grew safe tomatoes, and numerical data on persons with *Salmonella*.

While general stories about tomatoes were predominantly negative in the early weeks of the crisis, with 15 negative and two positive, this negative frame shifted to peppers in the later weeks as the investigation shifted to those foods. Nine negative stories were identified about peppers.

2009 Salmonella Outbreak

Frames presented in stories covering the outbreak of *Salmonella* in peanut products differed in various ways from those in the outbreak in peppers. The majority of the frames presented were informational or warning stories (n = 61), most of which displayed a neutral tone (n = 54), though there were seven that displayed a negative tone instead. These informational and warning stories often contained the word 'avoid' to inform consumers on products that were potentially unsafe for consumption. All four networks occasionally presented stories with numerical data on persons ill or deceased as a result of the *Salmonella* contamination.

All the networks had shifted to a negative tone by late January; ABC and NBC shifted from a neutral to a negative tone on January 24, while CBS shifted to a negative tone on January 20, and CNN, who had started with a negative tone and shifted to a more neutral one, shifted back to a negative tone on January 28.

ABC's stories were mostly straightforward reports of FDA investigations that were being conducted, though many were negative toward the PCA. There was one opinionated comment by a reporter noting how peanut butter was safe but parents were more than likely going to avoid it anyway.

CBS's stories offered some information that was not found in stories reported by other networks. Two reports were done on PCA operations, specifically explaining that the company was not a manufacturer of peanut butter for end consumers, but instead provided peanut butter and paste in bulk to other companies who then used it in their own products. CBS also explained the difference between peanut butter and peanut paste, a topic which was potentially confusing due to the similar terms used for the two products (S. Nutt, Texas Peanut Producers Board, personal communication, Jaunary 18, 2010). When FDA investigation results were released, CBS's reports provided the most precise summary of what was found. CBS was also the only network to report that the owner of PCA, Stewart Parnell, was on the United States Department of Agriculture (USDA)'s Peanut Standards Board. Despite this overall concise and information-rich reporting, some of which could not be found on any network, CBS also had some rather opinionated comments, noting that the products under recall were "foods you should not be eating anyway." They also reported that PCA had used contaminated peanuts, which was incorrect and had not been reported anywhere else. CBS provided contradictory information on which products to eat or avoid, switching between statements telling consumers to completely avoid peanut products and lists of which products were safe. There was also one example of potential leading by the news anchor during a live interview.

CNN's coverage started with a negative report which stated that the FDA was "wasting money." They also reported on January 9 that the source of *Salmonella* contamination was still unknown, despite the fact that the Minnesota Departments of Health and Agriculture reported the same day that they had discovered *Salmonella* in a container of peanut butter. They were also seen to have a contradictory statement, noting that peanut butter was safe but then informing viewers later in the same story not to eat peanut butter at all.

CBS and NBC reported that consumers should not eat peanut butter as late as January 18 de-

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spite government statements and coverage from other networks that only certain products were contaminated. NBC's other coverage was free of reporter speculation, and they presented a story framed as positive in regard to PCA employees, noting how 50 of them were now jobless due to the crisis. NBC was also the only network to offer information on how the crisis was negatively impacting the peanut industry financially and the only network to interview a USDA official. They also reported on the fate of the PCA when the company filed for bankruptcy.

Findings in Relation to Research Objective 2

As the sources used by reporters can drastically influence the frame and tone of a news story, it was important to consider which sources were used by reporters during both crises and what impact these had overall.

2008 Salmonella Outbreak

The FDA was the most common source in these stories (n = 28) with David Acheson, the commissioner of the FDA, providing interviews for 23 of those stories (see Table 1). The second most popular interviewee was Caroline Smith DeWaal, the food safety director of the Center for Science in the Public Interest, who provided five interviews. The third most popular overall source was farmers and growers, who provided information for 12 stories.

2009 Salmonella Outbreak

In this outbreak, victims or their family members acted as sources for the largest number of stories (n = 21) with politicians close behind (n = 16). The FDA provided information for only 13 stories during this crisis. There was also a strong presence from former FDA officials. Eleven interviews were conducted with medical doctors and dietitians, who primarily provided factual and unbiased information, with only one providing speculatory statements. There were nine interviews with PCA employees, which came from those who had previously worked for the company, though several networks pulled sound bites from Stewart Parnell's testimony before Congress. The Center for Science in the Public Interest was used four out of the six times the networks utilized consumer watchdog groups as sources, with three interviews on ABC and one on NBC.

Findings in Relation to Research Objective 3

When determining the similarities between the frames of the two *Salmonella* outbreaks, the primary similarity is Informational stories, despite the fact that this was considered a theme and not a frame during the first outbreak (see Table 2). Of these, the 2008 outbreak had 19 and the 2009 outbreak had 61. Stories concerning the government were also featured in both crises, with the 2008 outbreak featuring 42 stories concerning the government in some fashion and the 2009 outbreak featuring 26. Other frames cannot be directly compared between the two stories due to the different products that had been contaminated and the differing situations (imported foods versus in-plant contamination).

Findings in Relation to Research Objective 4

When considering the differences between the frames of the two outbreaks, many come to light. The first outbreak featured stories about farmers (n = 23) and Mexico (n = 5) while the second outbreak focused on PCA (n = 41), food manufacturers (n = 5), the Georgia Department of Agriculture

(n = 4), and the peanut industry as a whole (n = 4). Themes identified in the first outbreak that could not be classified as frames on their own, nevertheless had a number of stories; tomato themed stories were featured 17 times, pepper themed stories nine times, and stories with a theme discussing the supply chain aired four times.

Table 1
A comparison of frames used between the 2008 and 2009 Salmonella outbreaks

Sources	2008	2009	Total
FDA	16	13	29
Victim	2	21	23
Politician	1	16	17
Doctor	2	11	13
Consumer	9	4	13
Company Employee	-	9	9
Farmer/Grower	8	-	8
Other	5	3	8
Former FDA Employee	-	7	7
Center for Food Safety	6	-	6
Supply Chain	6	-	6
Special Interest Groups	-	6	6
Attorney	1	4	5
Center for Science in the Public Interes	4	-	4
Food Safety Expert	2	1	3
CDC	1	2	3
Government, other	1	-	1
Health Department	1	-	1
Total	65	97	162

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Table 2

A comparison of frames used between the 2008 and 2009 Salmonella outbreaks

	ABC			CBS			CNN			NBC			
2008 Outbreak Frames	Pos.	Neg.	Neu.	Pos.	Neg.	Neu.	Pos.	Neg.	Neu.	Pos.	Neg.	Neu.	Total
Government		7		1	4		1	13	13		3		42
Farmers	4			5	2		11	1					23
Mexico								4				1	5
Themes													
Information			3			7			4			5	19
Tomatoes	1	5			4			2		1	4		17
Peppers		4			1			4					9
Supply Chain					1			1		1			3
Total	5	16	3	6	12	7	12	25	17	2	7	6	118
2009 Outbreak Frames	Pos.	Neg.	Neu.	Pos.	Neg.	Neu.	Pos.	Neg.	Neu.	Pos.	Neg.	Neu.	Total
Information/Warning			16		4	16		2	2		1	20	61
PCA			14		12				6	1	6	2	41
Government		7			8		1	5			4	1	26
Food Manufacturers		1		1	1			2					5
GA Dept. of Ag.		1						1			1	1	4
Peanuts/Peanut Industry				1	3								4
Total		9	30	2	28	16	1	10	8	1	12	24	141

Conclusions and Discussion

This study, overall, showed that even stories that are over similar agricultural topics (such as food safety issues) can be handled in very different ways. Though some similarities existed, there were differences in the types of sources used and in the way some groups used as sources were treated. Though governmental sources were generally framed in the same manner in both crises, other sources were viewed in different ways from crisis to crisis. Finally, both crises showed the use of sources that were not true experts on the situation, with a notable lack of food safety experts in either crisis and the usage of special interest groups and other similar sources for information.

The frames utilized in the two crises and the way they compare to each other provided insight into the ways that news stories are created and the way that different topics, such as agriculture and food safety, are handled. Despite the outward similarities between the two crises, only two true similarities were discovered in the way they were handled by the media.

The first and largest similarity was the usage of informational stories. However, in and of itself this is also a difference, since this was not considered a theme in the data analysis of the coverage of the 2008 Salmonella outbreak. Despite this, the media considered it important in both crises to provide information to consumers—information about what food items were contaminated, how the FDA investigations were being handled, how many people were sick, and other related topics. Above all, spanning both crises, the media saw a need to simply inform consumers about what was going on.

The second similarity was the usage of negative frames when speaking about the government. In the first crisis, CNN and CBS ran stories that were critical of the FDA and the overall food tracking system in the United States. In the second crisis, stories again criticized the FDA and the food tracking system, despite the fact that the FDA discovered the source of the outbreak much faster than it did in 2008.

The major differences between the two cases appear when considering the other stories that were aired about these crises. Frames and themes in the first outbreak focused on tomato farmers, Mexico, and the produce itself, as well as the supply chain. In the second outbreak, the focus of the media's stories was firmly on PCA as an organization and food manufacturers, with only a handful of stories about the peanut industry despite the fact that it had suffered the same heavy losses as the tomato industry during the first crisis.

When considering the sources used for both crises, the findings align with those found in the framing of the stories themselves; stories from the first outbreak used farmers as sources more often than any other group except the FDA, with politicians in third and public interest groups, food safety experts, and doctors trailing behind. The second outbreak used more victims or family members as sources, followed by the FDA, and then by politicians. No farmers were interviewed, but former employees of PCA were.

The difference in sources between the two crises could be due to the fact that tomato farmers with product that was not selling were easy to spot; tomatoes sitting in baskets and rotting made for dramatic video footage. Peanut farmers deliver their product to processing plants where it is mixed in with other peanuts, and the 2009 *Salmonella* crisis occurred in the winter and not during the growing season. This, combined with the fact that the *Salmonella* contamination was firmly on the processing plants and not the individual farmers, means that the farmers were not individually involved in the crisis, although the public quit buying their products.

Also, despite the negative tones toward various groups, the 2008 coverage was generally positive and sympathetic when dealing with individual farmers. The complete lack of farmers in the 2009

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outbreak coverage protected them from negative publicity, but also distanced them from the story even as the peanut industry lost money much as the tomato industry had the year before.

PCA itself was framed very negatively in the majority of cases, though this comes as no surprise due to the fact that the FDA found them wholly at fault for the contamination and this information was passed directly on to the media.

In addition to the disparity between the usage of farmers as sources in one crisis and the complete lack of them in the other, there were differences in the other types of sources used. The FDA was a heavily-used source in both situations, though in the second case victims were used more. Politicians were used both times, as were doctors and special interest groups. However, in the second study, doctors were used more often than watchdog groups, which is at odds with previous research (Anderson, 2000; Eyck, 2000; Ashlock et al., 2006). Food safety experts were used seven times in the 2008 outbreak, but only once in the 2009 outbreak. The researchers expressed concern during the 2009 outbreak as well since a celebrity chef, Bobby Flay, was used as a food safety expert on one occasion; and although the information he provided was correct, the amount of true authority he has on the subject is questionable.

Conveying difficult information accurately is a concern since many reporters may not have a background in science (Anderson, 2000). This can make specialized information difficult to report or prone to errors. However, with a few exceptions (mostly for numerical inaccuracies likely due to a lack of fact-checking, and a few reporter opinions or speculation) the reporting for both outbreaks was accurate. Being a commodity at the center of a food safety investigation conducted on such a scale, with the stories that follow, is never a good thing for the food product involved, but the losses incurred by the industry in both cases were not due to poor or biased reporting. In the case of the first outbreak, the media diligently reported what the FDA was investigating, which was tomatoes until July 1. In the case of the second outbreak, the reporting focused on PCA and not the peanut industry as a whole, as the FDA investigation moved in that direction and found them to be the culprit. There were a few cases of speculation, particularly on the true source of *Salmonella* during the first outbreak, but the facts were reported in both cases when they became known.

Recommendations

For Practitioners

The media's coverage of food safety stories does not always negatively impact the product under investigation. However, by studying the way these stories are framed, public relations practitioners can discover better ways to distribute messages to the public, even in times of crisis.

The media seems to favor producers as sources for stories when they are more personally involved. The inclusion of farmers as sources in the 2008 outbreak can probably be attributed to the easy connection between the farmers and their produce; in many cases, since the produce was not selling, the farmer and his produce and then displayed for viewers to see with their own eyes. However, in the second story, peanut farmers were no longer capable of being associated with their own product, as it had been delivered, roasted, stored, and then converted into other products before being contaminated. This level of separation, and lack of personal connection with the peanuts they grew, may well have contributed to reporters deciding not to use them as sources.

Reporters should never be afraid to ask food scientists and other experts to serve as sources for their stories, as these individuals should be represented by public relations practitioners who can help reporters communicate with the experts. Though used several times in the stories covering the

2008 outbreak, only one food scientist served as a source during the coverage of the 2009 outbreak. PR practitioners can help these experts provide scientific information about just what is happening during a food safety crisis and prevent inaccuracies and inconsistencies within individual stories and within a station's reporting as a whole. This can help to minimize the damage done both to the reputation of reporters and stations and to those involved in the crisis who may not be responsible for the contamination, such as the peanut industry as a whole and the American tomato farmers.

For Future Research

Future research should focus on how other food safety crises are framed by the media and how these differ from story to story. Effort should be made not only to determine what frames exist, but what sources are used, and how these sources affect the frames used as well.

In addition, different food safety crises should be compared and contrasted to one another as was done here. This will help to provide a clearer and concise picture of how the media frame their stories and what can be done in the future to help provide more useful information in these situations.

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Research

Preferred Information Channels and Source Trustworthiness: Assessing Communication Methods Used in Florida's Battle Against Citrus Greening

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Abstract

The purpose of this study was to examine the perceived source credibility, as viewed by Florida citrus growers, of state and national agricultural organizations associated with containing the plant disease called citrus greening. This study sought to determine the types of information that agricultural opinion leaders received from these agriculture organizations. In late 2007, three focus groups were conducted at county Cooperative Extension Service offices in three major areas of citrus production. The number of participants ranged from four to six for a total of 15. Growers were asked about their awareness and understanding of citrus greening; management practices; cooperation with fellow producers and institutions that played a role in citrus greening management; preferred avenues of communication; and information dissemination methods. Qualitative analysis was conducted to identify key themes and patterns within each topic category. Focus group results indicated that Florida citrus growers preferred to receive information about citrus greening primarily through face-to-face meetings and field days. They also preferred to receive their information from other growers in order to find out how their fellow farmers handled citrus greening. Focus group participants struggled with trusting regulators and university researchers, based on the growers' previous experiences during the unsuccessful citrus canker eradication program and growers' perceptions of the practicality of the research. Finally, growers were critical of the lack of available information about citrus greening from regulators and university researchers.

Keywords

citrus greening, trust, information channels

Introduction

The Florida agricultural industry ranks second in the overall state economy (Woods, 2008) at $137 billion in sales revenue in 2007, with citrus production, processing, and marketing, alone, worth an estimated $9.3 billion and employing an estimated 70,000 people. Despite the annual economic impact, the Florida citrus industry is not immune to natural problems, such as disease (Woods, 2008; Zwick & Carr, 2006). Citrus canker struck the state in the late 1990s and early 2000s, causing the implementation of the controversial U.S. Department of Agriculture's Citrus Canker Eradication

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Program, which proved unsuccessful following the 2004 and 2005 hurricane seasons, when hurricanes spread the disease throughout the state.

A more recent and possibly potentially more damaging disease threatening Florida's citrus industry is citrus greening (Huanglongbing or "yellow dragon"), discovered in Florida in 2005 (Yates, Spann, Rogers, & Dewdney, 2009). It has been called the "world's most serious citrus disease" (Hollis, 2008, para. 1) because of the rapid decline of trees, once they are infected. The bacterium found in Florida originated in China and is spread rapidly by an insect, the Asian citrus psyllid. After a tree is infected, the new shoots of growth lose their color and turn yellow, hence the name, "yellow dragon." Fruit production is slowly destroyed, and the tree can eventually die. An infected tree is usually removed from the grove. Nearly all of the state's 568,000 acres of citrus acreage is threatened by citrus greening (Yates, Spann, Rogers, & Dewdney, 2009).

Citrus producers in the state have faced similar disease and environmental crises in the past decade, such as citrus canker and hurricane damage. Even so, citrus greening is a unique challenge because it can remain undetected in an infected tree for several years without displaying symptoms and can then spread rapidly through the flying psyllid (Chung & Brlansky, 2009; Yates et al., 2009). Not only is it difficult to detect and control, but the growing number of abandoned citrus groves in the state means the disease is not always managed uniformly, and this can impact the entire industry. A grove that is sold for real estate development and which does not have a caretaker or greening control program may contaminate neighboring operations that are spending resources to control greening. The USDA's National Agricultural Statistics Service reported there are at least 140,000 acres of abandoned citrus groves in Florida (USDA/NASS, 2009). At is the time this article was written, there was not a federal- or state-mandated program for greening control similar to the USDA program to control the spread of citrus canker.

The crisis of citrus greening in Florida raises issues about how agricultural producers respond to university research and the Cooperative Extension Service, their perceptions of regulatory institutions, and their dependence on information from organizations and their neighbors. Individuals who depend on the agriculture industry for their livelihoods expect timely information from trustworthy industry leaders and organizations. Historically, opinion leaders have been recognized as an important link in the diffusion of messages to the general public or target audiences (Lazarsfeld, Berelson, & Gaudet, 1948). Researchers have also analyzed the credibility, trustworthiness, and overall attitude of communication messages (Hovland & Weiss, 1954; Kelman & Eagly, 1965; Sternthal, Phillips, & Dholakia, 1978). These studies have reported that credibility, trustworthiness, and overall attitude play important roles in determining how messages are perceived and accepted.

The project described in this article was conducted to assist Tropicana – one of the largest citrus processors in the state – to better understand Florida citrus growers' attitudes and behaviors regarding preferred management practices (PMPs) to contain citrus greening. Focus groups were conducted with Florida citrus growers in late 2007 to gather information about the growers' awareness and understanding of citrus greening, their current management practices, and the best ways for organizations to provide growers and managers with information about greening and other citrus diseases and issues. The purpose of the overall study was to recommend preferred management practices (PMPs) to contain citrus greening. The purposes of this particular article, as part of the overall study, are as follows: 1) describe participants' preferred information and communications channels for receiving information about citrus greening management; 2) describe levels of trust and source credibility of information provided by sources of information on citrus greening, including UF/

IFAS, the USDA, processors, and pesticide companies; and 3) assess the quality of information and research being conducted to manage the disease.

Theoretical/Conceptual Framework

Source credibility is a foundational element of this study. Hovland, Janis, and Kelley (1953) examined qualities that could affect a communicator's credibility, including how well the source communicates and the communicator's membership in a particular social status group, as well as attitudes towards the communicator. The researchers posited that source credibility is the degree of trustworthiness combined with the degree expertness perceived by the message receiver. Sternthal et al.(1978) asserted that a source perceived to be credible will have more of an impact on the message recipients. O'Keefe (1990) defined credibility as the judgments "made by a perceiver (e.g. a message recipient) concerning the believability of a communicator. Communicator credibility is thus not an intrinsic property of a communicator; a message source may be thought highly credible by one perceiver and not at all credible by another" (p. 131). Erdem and Swait (2004) defined source credibility to be the "believability of an entity's intentions at a particular time" (p. 192). This definition also includes the specific factors of trustworthiness and expertise, first described by Hovland et al. (1953) in understanding the broader concept of source credibility.

Lazarsfeld et al.(1948) pioneered the concept of opinion leaders in their two-step flow model of communication. Since then, other researchers have conducted experiments in an effort to better understand the qualities an opinion leader possesses and the impact opinion leaders can have on the diffusion of innovations (Corey, 1971; Burt, 1999; Valente & Davis, 1999). Corey (1971) noted "opinion leaders are 'trusted and informed' people who exist in virtually all groups [of people]" (p. 48). Robinson (1976) characterized opinion leaders as individuals who are different from the general public either because of "social position or status or by virtue of their greater interest in the topic at hand" (p. 307).

Rogers (2003) defined the concept of opinion leadership as "the degree to which an individual is able to influence other individuals' attitudes or overt behavior informally in a desired way with relative frequency" (p. 27). Additionally, opinion leaders have been described as individuals who, through personal interaction, are able to make ideas or innovations infectious to those with whom they come in contact (Burt, 1999). Leonard-Barton (1985) examined the effect opinion leaders have in the diffusion of innovations process. Results indicated that individuals within the general public tend to rate new innovations more positively when subsequently opinion leaders have also rated the innovation positively. Opinion leaders often have a "unique and influential position in their system's communication structure: they are at the center of interpersonal communication networks" (Rogers, 2003, p. 27). Valente and Davis (1999) discussed the possibility of accelerating the diffusion of innovation by utilizing opinion leaders' credibility. The researchers wrote that in order for the opinion leaders to accurately diffuse an innovation into a community, they must be viewed as "credible by the community citizens" (p. 63).

One of the elements to be considered within source credibility is the receiver's attitude towards the communicator. Kelman and Eagly (1965) conducted two experiments to measure the perceptions of communicator content. The first experiment examined the tendency of participants to misperceive the message of a negative commentator because the message went against the participants' position on the issue. In this experiment, the negative speaker was judged "consistently lower in trustworthiness, expertness, general attractiveness and representativeness" (p. 66). In the second experiment, the

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communicators took basically the same position on an issue, but addressed the position from different angles, or themes. The message of the positive communicator was more likely to be accepted by the subjects.

Valente, Poppe, and Merrit (1996) studied opinion leadership and interpersonal communication. Results indicated that the amount of credible information available on a specific topic affects the amount of interpersonal communication about the topic. The authors described interpersonal communication as giving and seeking of information. Additionally, when credible information about a topic is extensive, the need for the giving and seeking of information from others is reduced. However, when there is not a surplus of credible information available to people "the higher the level of misinformation, fears, and doubts about an innovation, the greater the associated interpersonal communication and opportunities for opinion leadership" (Valente, et al., 1996, pp. 261-262).

An additional factor that should be considered when assessing source credibility is the message receiver's initial attitude toward the message. Frewer, Howard, and Shepherd (1998) studied the role prior attitudes play in "determining individual responses to incoming information" (p. 16). Specifically, the researchers were investigating the application of prior attitudes toward the issue of genetic engineering in food production. They found that prior attitude toward an issue does play a role in how a message is viewed and accepted. Additionally, the information's source was rated as more knowledgeable and trustworthy when the individual had an initial positive attitude of the issue.

Windham (2009) examined agricultural opinion leaders' perceptions of source credibility of organizations from which they received information. Overall, agricultural opinion leaders receive the majority of their information from organizations in which they are most involved. The organization whose primary goal was research and education rated high on the expertise constructs of credibility including knowledgeable, qualified, expert, skilled, and experienced, but lower on the trustworthiness constructs of credibility, including honest, dependable, trustworthy, sincere, reliable, and balanced. Agricultural opinion leaders trust information the most that originates from the organization in which they are most involved.

Methods

The research design for this study was qualitative and exploratory in nature. As a methodology, qualitative research provides the opportunity for exploration and collection of rich data that can lead to deep insights and understandings beyond what quantitative methods might produce, especially in an exploratory study. Focus groups, a qualitative technique particularly useful in exploratory studies, was the methodology that was used for this study. "Focus groups can provide insight into complicated topics where opinions or attitudes are conditional or where the area of concern relates to multifaceted behavior or motivation" (Krueger, 1994, p. 45). Focus groups are essentially a group interview technique, typically conducted with between 6-8 participants who are either randomly selected or whom are chosen because they possess representative, specific traits and characteristics of interest. Focus group participants interact and discuss with a moderator present to guide discussion over a prescribed range of topics. As a qualitative method, focus groups are designed to "bring together several participants to discuss a topic of mutual interest to themselves and the researcher" (Morgan & Spanish, 1984, p. 254). Focus groups have the advantage of being more naturalistic in terms of the ability participants have to interact with each other. Focus group results are not generalizable in nature, but the insights gleaned from focus group data collection and analysis can be used to inform decisions, uncover attitudes and perceptions and provide actual statements from real people (Creswell, 1998).

In late 2007, three focus groups were conducted at county Extension offices or Research and Education Centers in three major areas of citrus production in Florida. The population of this study was citrus growers in the state of Florida. Participants were recruited by the Florida Survey Research Center (FSRC), a market research firm at the University of Florida, using a list of grove owners provided by Florida Citrus Mutual – the state-level producer's association – and Tropicana. The market research firm utilized trained telephone interviewers and a computer-aided telephoning interviewing system that allowed interviewers to work from a standardized script and automatically program callbacks to minimize error. Those grove owners who were interested in participating were asked a series of screening questions about their availability, potential meeting locations, and the size of their groves. Based on these characteristics and availability, the FSRC selected the most diverse groups of participants possible to participate in each of the three focus groups. Attempts were made to include owners of small, medium, and large groves to ensure that a range of practices and opinions were represented.

In total, 15 grove owners and managers participated in the focus groups: four in the Lake Alfred group, five in the DeSoto County group, and six in the Indian River group. One focus group was held on November 13, 2007 (Citrus Research and Education Center in Lake Alfred); one was held on December 5, 2007 (DeSoto County Extension Office in Arcadia); and, one on December 12, 2007 (Indian River REC in Fort Pierce). Each session lasted 90 minutes. Focus groups were held at UF/IFAS County Extension Offices or Research and Education Centers.

A moderator's guide was developed and reviewed by a panel of experts prior to the focus groups being conducted. An objective moderator and assistant moderator from FSRC conducted the focus group sessions. The moderator and assistant moderator were not members of the agriculture industry. Each session began with general introductions to encourage participants to become comfortable in the group setting. Growers were asked about their awareness and understanding of citrus greening; management practices; cooperation with fellow producers and institutions that played a role in citrus greening management, namely processors, the University of Florida's Institute of Food and Agricultural Science (UF/IFAS), and governmental regulators; preferred avenues of communication; and information dissemination methods.

The focus group sessions were recorded using audio, video, and field notes, and sessions were transcribed and analyzed using Glaser's (1978) constant comparative technique. Researchers looked for common themes, similarities and dissimilarities, and observations of nonverbal cues, interactions, and reactions to questions and interactions with other citrus producers. Transcripts were coded for themes, and categories created. As themes emerged they were compared to existing categories to look for common relationships. New categories were created for distinct themes that did not fit existing categories. An audit trail including original data analysis, codes, semantic relationships, and listing of all domains was kept for verification and trustworthiness.

Results

Three themes emerged from the focus groups: the identification of preferred information and communication channels; the perceptions of trust and the relationships growers have with different institutions and with one another; and the need for timely and practical information on citrus greening management.

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Preferred Information and Communication Channels

Focus group participants stated they preferred receiving information about citrus greening management through face-to-face means, primarily meetings and field days. Most had been to training classes on greening offered by local Extension offices, which they found useful, but they appreciated going into the field to see the processes in action. Growers were most interested in attending meetings with other growers, often held at Extension offices, at which they could share information about greening. One grower said, "I would think that probably the most effective [approach] is to do the grower meetings. When you have new information to share they call these meetings, and I would assume that would be the most effective and timely." The growers also mentioned sharing information through e-mails and traditional communication channels, such as the magazine *The Citrus Industry* and through a UF/IFAS e-mail newsletter on citrus greening, but most preferred face-to-face communication methods.

Trust and Relationships

There was wide variation in the degree of "trust" according to various sources of information about greening, such as UF/IFAS, the USDA, processors, and pesticide companies. However, all participants agreed they most trust other growers as sources of information and preferred practices. As one grower said, "He's (grower) already tried something, experienced it, done something. I like to hear what other growers are doing."

Neighbors: One of the most discussed barriers to PMPs for citrus greening was the behavior of other growers and "neighbor" owners of abandoned groves. Most of the participants in the focus groups were proactive in attempting to deal with greening, but they were aware not all growers were doing the same. Because the USDA is not managing greening in the same way that canker was, there is no formal program of inspection or forced tree removal to control the spread of the disease. The focus group participants worried about the impact that neighboring groves may have on their own groves, especially in regards to controlling psyllids, as discussed by this grower:

> One of the philosophies [for being proactive against greening] is killing psyllids as much as you can, control them as much as you can, but everybody is not buying that….one of the local chemical guys tells me that 80% of his clientele don't kill psyllids – don't target them specifically. So if your neighbor is not spraying psyllids, then I think you're going to pay the price.

A grower in another group agreed: "I think that is our biggest challenge, though, is our neighbors." Another said, "You feel vulnerable to those around you." Of particular concern were neighboring groves that are organic, are abandoned, or are no longer actively growing citrus, having either been sold to developers who have yet to develop the land or to cattle farmers. In the case of organic groves, no pesticides are used to control psyllids or other insects. In the case of inactive groves, no psyllid management exists:

> In our area, you've got a lot of developers who have bought properties, and now the economy has changed. The housing situation has changed, and they're sitting on groves. They're not putting any money into it.

Since many groves are adjacent to one another, psyllids could enter one grove from another where spraying is not occurring. This is especially problematic for owners who have smaller groves (10- to

20-acre blocks) surrounded by others who may not be controlling pysllids. Most participants saw abandoned groves as a statewide problem hampering their control efforts, as noted by this grower: "Because you've got them leased for cattle and there's [sic] trees out there and you know nothing's been going on, I think statewide, it's a huge problem."

Education Institutions, Regulators, and Processors: The citrus industry has developed relationships with many institutional partners over the years, including University of Florida citrus and plant disease researchers, the state Extension service, juice processors and packing houses, grower associations at the regional and statewide level, and the U.S. Department of Agriculture. Participants in the focus groups often mentioned how they relied on all of these organizations for assistance with citrus greening information and control. At the same time, they expressed their ambivalence about government interference in their management decisions. They also expressed doubts about university research results and whether it is economically rational to implement recommended practices. Focus group participants also raised issues with the juice processors as they sought a solution to the crisis.

Some sentiment was related directly to the citrus growers' experience during the citrus canker eradication program. Researchers demonstrated that canker spores could spread to neighboring trees in an area of 1,900 feet around the infected tree. This led to the "1,900-feet rule," and the USDA mandated the removal of all trees within that space, a situation that growers have not forgotten. As the following grower said:

> And we took this huge hit following guidelines, I mean I followed them to a 'T.' Nineteen hundred foot, we questioned it. We asked them, 'Don't we need to adjust this? This is starting to get out of hand.' So now greening comes around and it's now, 'You've got to burn your trees. We want to take all your trees out. You've got to burn your trees if you've got them infected.' I'm not saying that's not the right thing to do, but these guys [citrus growers] have been burnt and they're going to be careful about it.

Other growers also expressed reluctance at following university or regulatory guidelines on citrus greening, as they did for citrus canker. One grower said, "You can't always just follow blind. We've done that, and it didn't work." Growers also expressed worry that they might be penalized if their groves were labeled as infected or problematic, limiting their ability to sell their fruit. They also said, though, that all sides need to set aside "political" or "bureaucratic" issues and come together to find solutions.

Many growers said that the citrus processors should be more actively involved in finding solutions to issues like citrus greening – whether by encouraging research on resistant plant varieties, maintaining or increasing prices to support growers' increased caretaking costs, or merely promising that growers who test positive for greening will not be "blacklisted" by processors. Broadly, some of the growers also worried that processors may find out they have infected trees in their groves and refuse to buy their fruit, further decreasing their income and ability to work to eradicate greening. Growers said processors should be more active in supporting practices to control greening, since "all the processors and growers are really in this thing together," as one grower said.

Growers indicated that they have replaced their trust in outside institutions with more reliance on fellow growers:

> We're in this to make money. The growers got one thing in mind. You got the chemicals, you got the doctors [Ph.D.s], you've got a lot of bureaucracy. I'm not saying everybody's got an

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evil side, but sometimes they get skewed differently and any researcher you talk to, most of them will have an orange tree in their backyard, but they're not making their livelihood trying to grow a farm.

Timely and Practical Information

Members of all three focus groups expressed their frustration with the uncertainty surrounding citrus greening. Growers repeatedly indicated feeling challenged in how to deal with the disease because of the lack of quality information at their disposal. Growers noted the lack of available information on citrus greening was a major challenge for growers to overcome, limiting their understanding of effective control and prevention methods, as well as their plans for implementing measures that are available. Said one, "We understand the other diseases….but the greening thing – we don't know." The unanswered questions and lack of information often left growers wondering what to try next: "They [scientists] don't know [how psyllids move]. And to me, that's the big scare; we have no idea."

Growers expressed a need for practical and sound research and information they could implement in the field and use to make reasoned decisions for their businesses. All focus group participants said there are many unanswered questions related to citrus greening, and most would like to see these researched further. One said, "Time will tell. There's [sic] more questions than answers. We're waiting on research." The growers were in support of box tax funds being used to support research on citrus greening. The growers said they realized the value of university and USDA research, but they needed to find practical applications in it, as noted by this grower:

> But [research has] got to get from the paper to the field, and the stuff on the paper doesn't always make sense or adapt to the field, and that's where the actual growers have got to put it to work.

They repeatedly distinguished between research and application components of information on greening, stressing the practical knowledge that growers bring to the issue:

> As much as I'm a fan of the University of Florida and USDA and I sit on all these research panels and do all this stuff, the truth is, growers – a lot of times – figure out the answer to agricultural problems. And they might get a little tick here and there on some research or maybe they get some real important stuff from research, but nine times out of ten a grower will figure something out based on what he's heard.

While growers commented that they appreciated and held in high regards the research work done by plant scientists, they worry that the research process moves too slowly to be timely. Some said they would benefit more from some "trial and error" testing of possible controls and solutions that growers and managers are implementing in the field. As one grower said, "By the time you get a recommendation, you're dead and gone. You're out of business. I think you get more out of a little trial and error." Many specifically noted that citrus greening is a bigger threat than citrus canker:

> I was talking to my friend just today, and he said that canker was a boil, but greening is cancer. There's just that much difference. We're learning to live with canker, but I think we're going

to have to convince growers that this [citrus greening] is really that serious.

At least part of the growers' concern seemed to stem from the faster-than-expected spread of citrus greening, the latency time, and a belief that they need to proactively move "ahead" of the disease: As one grower said, "I think it's like the story of the three little pigs. I think the damn big wolf is here and fixing [sic] to eat us if we don't build a brick house and figure out how to stop this thing."

Most said greening will get worse and continue to spread because those who are not using control measures will ruin others. Still, despite these concerns, several participants remain optimistic: "We're not in panic mode…we need to learn from it, see what we can do, tackle it head on." Most said they can learn to manage this disease, as they have previous diseases, if they have the proper information and the cooperation and participation of all involved – growers, processors, and researchers. As one grower said:

> If you want us to continue to grow citrus in Florida, everybody's going to have to step up to the plate. And the only people that are going to find a cure for greening are the people in this room (motioning to other growers), and the people out there in the industry. IFAS is not going to do it for us. UDSA is not going to do it for us. So we're out there trying things, and some people have been persecuted because they have tried things. And now that those things are starting to look a little bit better, their neighbors are like, 'Hmmm. Maybe we need to rethink this program.' Everybody needs to keep an open mind and be willing to learn something new every day.

Discussion and Conclusions

Focus group results indicated that Florida citrus growers preferred to receive information about citrus greening via meetings and field days. They also preferred to receive information from other farmers, to find out how their peers have been handling citrus greening. Focus group participants were less likely to prefer information transmitted by other methods, such as publications or e-mail. Growers were concerned about the possible lack of action of their neighbors to manage citrus greening. Focus group participants struggled with trusting plant researchers and regulators, based on two primary reasons: 1) growers' previous experiences during the unsuccessful citrus canker eradication program and 2) growers' perceptions of the practicality of researchers' information. Finally, farmers were critical of the lack of information; they also thought information they did receive was not provided in a timely manner, saying that "no one told us" of the devastating impact of citrus greening, until it became too late.

Because citrus greening is in the early stages in Florida, producers said they lack sufficient knowledge and experience with the best ways to identify the disease and apply cost-effective treatments. While the actions of neighboring operations can add another element of uncertainty for citrus managers, participants in this study said their fellow growers have proven to be their best means of support during the greening crisis. Growers, with assistance from university and government researchers, have trained one another in identifying greening and controlling it, and fund researching to treat the disease.

Findings in this study complement previous studies' results on source credibility and opinion leadership. Valentine and Davis (1999) noted the need for opinion leaders to be credible in their communities in order for an innovation to be diffused. Citrus growers in this study looked to other

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citrus growers to be those credible sources of information. The growers were less likely to view research institutions and government agencies as having information that would help them battle citrus greening and were more likely to seek information and assistance directly from those in the citrus growing community whom they viewed as credible. In essence, the citrus growers became opinion leaders on this topic due to the perceived trust and information they had in the community (Corey, 1971). They worked and shared information collaboratively to diffuse any innovation that might stop the spread of citrus greening (Leonard-Barton, 1985; Rogers, 2003).

Similar to Windham's (2009) results that farmers and growers hold research institutions highly, the focus group participants in this study also had high regards for research institutions overall. However, on the topic of citrus greening, the growers held research institutions in somewhat low regard, based primarily on their collective experiences with research institutions during the previous citrus canker outbreak. This negative experience caused citrus growers to doubt whether research institutions would have the answers the growers needed to control citrus greening. Frewer et al. (1998) also found the role prior attitudes play impacts an individual's response to incoming information. The citrus industry's experience with citrus canker may have played a role in the response to this latest disease, as growers reacted to greening largely on their own and were wary of the regulatory interference that they perceived had characterized the canker eradication program.

Citrus growers in Florida have faced many crises and threats to sustainability. They continue to produce an agricultural crop in a state where land values, until recently, made it very attractive to sell farmland to real estate development. Growers face growing competition from overseas producers. In the past decade, they have confronted a series of devastating diseases and hurricanes. This is the larger context of the citrus greening plague that is sweeping the state. The disease itself is difficult to monitor, contributing to the widespread uncertainty and making communication and expert guidance even more important. While agricultural researchers and Extension have played a key role in identifying the disease and recommending practices, they must also recognize how the current environment affects growers' perceptions of institutions and their need for information. Growers may have greater trust in their fellow growers who have stepped up their leadership roles. Extension, researchers, and government agencies must utilize the growers as partners.

Recommendations

The following recommendations for practice are based on this study's findings:

Preferred Information and Communication Channels

Although Extension services and other education-dissemination organizations have devoted tremendous resources to place information online or in other electronic-friendly forms, this study indicates that face-to-face communication methods – in the forms of field days, training programs, and grower meetings – remain extremely important to growers. Growers want to be able to share what they have learned through trial and error to control pests and diseases.

Another communications channel aspect to consider, based on the results of this study is the impact of social media. This study was conducted prior to the widespread use of social media (Facebook, Twitter, YouTube, and blogs). Extension faculty should determine what – if any – social media delivery methods their clientele are using. If growers have adopted social media, then these methods should be utilized to provide a forum for growers to share information. Studying growers' current social media habits also would be a recommendation for further research.

Trust and Relationships

As this study implies, it is important for agricultural communicators, Extension, and related educational organizations to get "buy in" from impacted and targeted audiences, if new control or management practices are to be introduced. Growers in this study said they did not feel they were part of the solution; they were told what to do, but did not really have a say about the control methods. In addition, this study shows that trust that has been built up over time can be lost in a short period. Growers' negative experiences with the citrus canker eradication program tainted their views of the control methods for citrus greening. Growers did not feel the citrus greening recommendations were in growers' best interests, due in large degree to their distrust of researchers, regulators, and processors. A recommendation from this study would be for organizations to continue to build trust with growers; in this study, trust could have been built – based on growers' perceptions – by allowing growers to be partners in the process, not outsiders looking in. Lastly, it is recommended that researchers, Extension faculty, or other change agents wishing to establish a behavior change, such as disease management efforts, should identify opinion leaders in their local communities to be advocates on their behalf.

Timely and Practical Information

A disturbing conclusion drawn from this study is that growers may perceive researchers as providing control methods that are more academic than practical. Several focus group participants discussed "Ph.D's," "academic and scientific research," and "not practical research" in a derogatory way. Some said they believed researchers were more concerned with publishing academic papers than finding practical solutions to citrus greening. Therefore, it is highly recommended that researchers strive to show the practical side of their research to growers – whether through Extension field days or how-to, practical publications.

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Research

From Opposite Corners: Comparing Persuasive Message Factors and Frames in Opposing Organizations' Websites

Katie Abrams and Courtney Meyers

Abstract

The U.S. animal agriculture industry has recently faced increasing pressure from organizations that seek to change or eliminate certain animal production practices. The purpose of this study was to examine and compare the persuasive messages factors present on two nonprofit organizations' websites. The Humane Society of the United States and the Animal Agriculture Alliance have opposing missions with the former advocating for reform in animal agriculture and the latter advocating for stakeholders in animal agriculture. A content analysis of each organization's website found that the Humane Society's Factory Farms website had more content overall, more content regarding specific animal agriculture industries, and contained more message strategies indicative of effective persuasion than the Animal Agriculture Alliance. The data suggest that the Humane Society of the United States' online public relations campaign appeals to both high- and low-involvement audiences on the topic of animal agriculture, while the Alliance campaign appeals primarily to high-involvement audiences.

Keywords

Website, content analysis, animal welfare, Humane Society of the United States, Animal Agriculture Alliance, persuasive communication

So What:

Agricultural and other science organizations consistently try to address negative messages about agriculture by basing their communication efforts on educating and informing publics. On the other hand, activist organizations with positions against mainstream agriculture seem to be using different strategies that have shown to be effective. Agricultural communicators need to understand how these communication strategies compare and how they might improve their own persuasive communication efforts with all types of audiences.

Introduction

Many industries wade in turbulent waters created in part by activist groups that have employed successful public relations strategies. Grunig (1992) defined activists as "two or more individuals who organize in order to influence another public or publics through action that may include education,

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compromise, persuasion tactics, or force" (p. 504). When activist groups are successful in their public relations strategies, they garner media attention, funding, power, and can ultimately affect change in entire industries (Coombs, 1998). The coal, health, chemical, and agriculture industries are just a few industries enduring and reacting to activist groups and nonprofits that seek to change their business practices. Businesses in these industries along with trade associations and nonprofits form their own groups to protect their interests. Examples of this are evident in the formation of the Center for Food Integrity ("Food industry groups combine," 2007) and the American Coalition for Clean Coal Electricity (Jones, 2008). These groups are sometimes referred to as "front groups" because their nature is to deliver messages of a particular perspective that do not outwardly appear to be sponsored or backed by other entities (Apollonio & Bero, 2007).

The livestock, or animal agriculture industry, is one such industry currently enduring what could be seen as a public relations crisis, in which animal agriculture opponent organizations, like the Humane Society of the United States (HSUS), are successfully changing and eliminating segments of animal agriculture in some parts of the country as evidenced through the passing of legislation to ban animal confinement systems in various states (Kilian, 2008); and the conflict between Ohio Livestock Care Standards Board and HSUS throughout 2010 and 2011 (Kick, 2010; Pacelle, 2011). The animal agriculture industry struggles with what seems to have become a public relations battle to influence publics on issues like animal welfare, human health, and environmental impacts.

Literature Review/Theoretical Framework

The United States' agricultural system has intensified as a result of technological and market forces, urban/suburban sprawl, and a decreased interest in farming as an occupation. Livestock production in particular is highly associated with trends toward greater farm concentration and corporate industrialization (Morrison, Nehring, Banker, & Somwaru, 2004; Lobao & Meyer, 2001). Livestock production today requires human input and control of the animals' lives from conception to slaughter in order to meet consumer demand for meat products. Recent changes in legislation (*Prop 2: Standards for confining farm animals,* 2008), food labeling, and growth of the market for products touting improved animal welfare practices demonstrate the public's increasing concerns for animal welfare (Greene et al., 2009).

Most people form opinions and concerns about the welfare of livestock with little or no direct knowledge of, or experience with, animal production and processing. As a result, members of the general public are more susceptible to information from media and interest groups on the issue of animal welfare in production agriculture (Zimbelman, Wilson, Bennett, & Curtis, 1995). Furthermore, the mass media are likely to use information provided by animal welfare or animal rights interest groups such as the Humane Society of the United States (HSUS), People for the Ethical Treatment of Animals (PETA), and the Animal Welfare Institute because these organizations provide shocking, newsworthy images and resemble watchdogs and whistleblowers (Munro, 2005).

Persuasion in social issues

Persuasion strategies are of utmost importance in forming and proliferating socially acceptable standards and, eventually, changing or maintaining business practices, especially when access to power resources is low (Coombs, 1998). Turner and Killian (1987) identified four tactical mechanisms animal advocates use in their campaigns – persuasion, facilitation, bargaining, and coercion. These four tactics essentially represent a continuum with persuasion being the most modest and coer-

cion being the most confrontational. Persuasion is communication aimed at shaping, reinforcing, or changing an individual's or group's attitudes and/or behaviors regarding an issue, object, or action under which the receiver(s) has free will (Perloff, 2008). Persuasion tactics often refer to the groups' use of communication materials including websites, petitions, pamphlets, surveys, and videos (Turner & Killian, 1987).

While face-to-face communication tends to be more persuasive than mediated forms (Bordia, 1997), websites are a particularly useful tool in persuasion for activist organizations. They area public relations mass medium that "allows managed communication to flow directly between organizations and mass audiences without the gatekeeping function of other mass media" (White & Ramen, 1999, p. 406). Often containing messages for multiple audience types, websites are a way for organizations to facilitate communication with the media, government, donors/sponsors, members, and consumers, as well as communicate internally (Johnson, 1997). In addition, the Internet has been seen as a way for activist groups to alter the power resource dynamic in issues management efforts (Coombs, 1998).

Elaboration Likelihood Model

The Elaboration Likelihood Model (ELM) describes two cognitive mechanisms by which persuasion occurs — the central and peripheral routes. The central route to persuasion is characterized by increased attention to the information and arguments in the message. This route can result in longer-lasting attitude change and attitudes predictive of behavior. The peripheral route involves less cognitive effort; people tend to focus less on the arguments and more on peripheral cues in the message to help them decide whether or not to accept the message. This type of processing generally results in less attitude change and temporary attitudes susceptible to counter-persuasion (Petty & Cacioppo, 1996).

The ELM was one of the first models of persuasion to recognize that receivers are not passive message recipients nor always consciously deliberating or elaborating on persuasive messages. A receiver's attention depends on how much motivation or ability one has to attend to a persuasive message. An individual's level of involvement is influenced by motivation, personal relevance, status of knowledge, and competence regarding the message. Changes or shifts in attitude are related to the receiver's level of involvement and the availability of peripheral cues. The more involved a receiver is, the more likely central processing will occur (Petty, Cacioppo, & Goldman, 1981). When receiving a message, people will treat its content (arguments) and non-content factors (photos, speaker, sources) differently depending on their level of involvement with the issue. Low-involved receivers may use arguments as a peripheral cue simply noting the number of arguments and assume the message with more arguments is of higher quality. High-involved receivers are more likely to consider the quality of those arguments (Petty & Cacioppo, 1986). With photos, the impact of affective imagery on attitudes is high when the individual has low-involvement. That effect disappears when involvement increases (Miniard, Bhatla, Lord, Dickson, & Unnava, 1991). Source expertise plays a different role in attitude change depending on involvement as well. Pornpitakpan (2005) found that science and university-based sources generally have high credibility, which is positively related to persuasiveness in changing attitudes and gaining behavioral compliance. Under low involvement, source expertise affects attitudes regardless of argument quality (Petty & Caccioppo, 1986).

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Message frames

In addition to message factors (arguments and non-content factors), an important persuasive element is the message frame (Perloff, 2008). Frames are cultural structures that organize understanding of social phenomena. Frames are used to determine what content is relevant to discussion of a concern; to define the roles of stakeholders; to outline relevant beliefs, actions, and values; to determine the language used to discuss the topic; and to outline the values and goals of the content area (Hertog & McLeod, 2001).

Framing involves the selection of some aspects of a situation and making them more salient through communicating text to perform four main functions: define problems, diagnose causes, make moral judgments, and/or suggest remedies (Entman, 1993). One ethical perspective on the use of frames is that they are used every day to organize life experiences and make sense of them (Goffman, 1974). Another idea is that frames create "word games," which distract receivers from fully understanding ideas (Perloff, 2008, p. 294). For example, in the context of animal agriculture, animal welfare groups refer to large-scale operations as "factory farms," while the industry refers to these facilities as Concentrated Animal Feeding Operations (CAFOs). Factory farms seem to have proliferated as the frame of choice among the public perhaps because it is easy to understand, whereas CAFOs "is clumsy and deliberatively non-descriptive" (Marcus, 2005, p. 15).

Fraser (2005) examined a variety of sources to present a comparison of arguments in the animal agriculture debate made by organizations against the industry and organizations trying to protect it. Table 1 displays and describes the six dominant frames Fraser (2005) identified and how each side portrays the issue.

Table 1

Frames of Animal Agriculture Used by Animal Welfare Groups and Agricultural Organizations

Frame	Animal Welfare Groups	Agricultural Organizations
Animal welfare	Detrimental to animal welfare	Beneficial for animal welfare
Agribusiness owners	Mainly controlled by large corporations	Mainly controlled by families and individuals
Profit vs. animal care	Motivated by profit	Motivated by traditional animal care values that lead to profit
Food supply	Causing increased world hunger	Augmenting world food supplies
Healthiness	Producing unhealthy food	Producing safe, nutritious food
Environmental impacts	Harmful to the environment	Not harmful, and often beneficial, to the environment

Note. Adapted from Fraser (2005, p. 636).

Purpose & Research Questions

Activist groups help set standards used to judge what is socially acceptable in business and other realms of practices (Coombs, 1998). "Activists gain legitimacy when they use socially accepted stan-

dards as the basis for their challenges" (Coombs, 1998, p. 293). In regards to animal agriculture, the HSUS's mission is to "confront …the worst cruelties of factory farming in modern agribusiness such as confinement of animals in crates and cages" (HSUS, n.d., About Us section, ¶2). On the other side of the debate is the Animal Agriculture Alliance (AAA), a non-profit group that acts as a public relations arm and unified voice for the animal agriculture industry. This organization "educates consumers, teachers, and the media …[using] consistent accurate messages based on sound science" (AAA, n.d., Questions and Answers section, ¶1-3).

Both the HSUS and the AAA have the goal of persuading members of the general public and policymakers about issues related to animal agriculture through multiple methods. Advocates for social movements use a variety of communication materials to communicate on behalf of their causes (McHale, 2004); therefore, evaluating the persuasiveness of their communication tactics could provide insight into potential changes in those causes including the one examined in this study, animal agriculture.

The purpose of this study was to examine and compare the persuasive message factors through a content analysis of the animal agriculture communication campaigns on the AAA and the HSUS Factory Farms Web sites. To meet this purpose, the following research questions were proposed:

RQ1: Do the organizations differ in the amount of coverage devoted to each animal agriculture industry?
RQ2: What sources are the organizations citing to support their arguments?
RQ3: How do the organizations use images and multimedia to supplement message content?
RQ4: What is the frequency of the frames identified previously by Fraser (2005) in the organizations' communication campaigns?

Methodology

This study used content analysis to examine and compare the persuasive message factors in the HSUS Factory Farms and the AAA animal agriculture communication campaigns. Content analysis is "a method of studying and analyzing communication in a systematic, objective, and quantitative manner for the purpose of measuring variables" (Kerlinger, 2000, as cited in Wimmer & Dominick, 2003, p. 141). Content analysis can be used to analyze a variety of communication texts (media coverage, television programming, historical documents, website content, etc.) to achieve a number of research purposes such as describing content, testing hypotheses, exploring media image, and establishing a need for additional studies (Wimmer & Dominick, 2003). The organizations' websites were chosen as the communication medium to analyze because they contain messages for multiple stakeholders (Johnson, 1997), are unfiltered by media gatekeeping (White & Ramen, 1999), are up-to-date (in this particular case), and offer a diversity of message delivery methods and supplemental materials such as text, photos, print materials, video, photo slideshows, and audio.

The researchers used a program called GSiteCrawler to create sitemaps for each organization's website to determine and characterize the population of website pages and ensure all relevant pages were included in the content analysis. This program filtered and refined results based on domain name and file type, checked for duplicate pages with same content but slightly different URLs, and compiled a listing of all of the URLs. The HSUS Factory Farms website contains 1,264 website pages and the AAA website contained 602 pages. After researchers eliminated website pages not relevant to the research questions and those that contained repetitive content, both the HSUS Factory Farms website and AAA website contained 78 pages so the entire population of 156 pages was analyzed.

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The news and media information sections of the websites contained 719 pages. These pages would make for a worthwhile study on their own, but were eliminated because the goal of the present study was to analyze the website's persuasive message factors targeted more toward policymakers, donors, stakeholders, and the general public than the media.

For most categories, the units of analysis were ideas (sentences) and images on the website pages, excluding the navigation and site identification banner. Coders examined only the content area of each webpage, links (to other website pages or multimedia), and images. Again, only the links and images that pertained to the content/message on the page were analyzed. A code book and code sheet were developed to determine the presence of (1) animals addressed, (2) sources, (3) photos, (4) photo characterization, (5) multimedia, and (6) frames.

Two coders were trained to use a code book and code sheet. After the initial training, a random sample of 10% (n = 16) of the population was coded to determine intercoder reliability. Scott's *pi* was used to calculate intercoder reliability; this statistic is similar to Cohen's kappa, which is another statistical test used to measure intercoder reliability for nominal data (Landis & Koch, 1977). A score of .68 was obtained, which indicates a good strength of agreement among the coders of these communication texts (Landis & Koch, 1977). The remaining Web pages were coded then the data were entered into a spreadsheet and analyzed using SPSS 16.0.

Findings

Data were analyzed using SPSS to obtain descriptive statistics (means and frequencies) and make comparisons between the HSUS and the AAA on content and persuasive message factors. Box plots of the data were examined and four extreme outliers (data observations that lie more than three times the interquartile range) from HSUS (n = 74) and one from AAA (n = 77) were removed from the data. The data violated the assumption of normality, which is common for count data (UCLA: Academic Technology Services, Statistical Consulting Group, n.d.), so non-parametric statistical tests were used to make inferences. As a result of non-normality, standard distributions are high.

RQ1: Do the organizations differ in the amount of coverage devoted to each animal agriculture industry?

Each website was analyzed to determine which animal agriculture industries were addressed. Several webpages addressed multiple specific industries or addressed animal agriculture in general, along with a few specific industries. Most (n = 63, 42%) of the pages on both websites were dedicated to animal agriculture in general. The layer hen industry (includes content about chickens and eggs) was present on 10 webpages in the AAA site and 26 pages in the HSUS site. A Chi-square test for independence indicated a significant association between organization and coverage of the layer hen industry, x^2 (1) = 9.01, $p < .01$, along with the broiler chicken x^2 (1) = 9.61, $p < .01$, geese x^2 (1) = 4.45, $p < .05$, and fish x^2 (1) = 3.48, $p < .05$ industries. The breakdown of all of the industries can be seen in Table 2.

Table 2

Comparison of Animal Agriculture Industries Addressed on the Organizations' Websites

	AAA		HSUS		Total		
Industry	n	Percent	n	Percent	n	Percent	χ^2
Animal agriculture in general	36	24%	27	18%	63	42%	1.24
Layer Hens	10	7%	26	17%	36	24%	9.01**
Dairy Cattle	15	10%	13	9%	28	19%	0.01
Broiler Chickens	4	3%	18	12%	22	15%	9.61**
Pigs	11	7%	12	8%	23	15%	0.01
Beef Cattle	7	5%	14	9%	21	14%	2.28
Turkeys	4	3%	10	7%	14	10%	2.19
Ducks	4	3%	11	7%	15	10%	2.94
Geese	2	1%	10	7%	12	8%	4.45*
Veal Calves	4	3%	8	5%	12	8%	0.95
None	10	7%	0	0%	10	7%	8.30**
Sheep	3	2%	2	1%	5	3%	0.00
Fish and Crustaceans	0	0%	5	3%	5	3%	3.48*
Goats	0	0%	2	1%	2	1%	0.55

Note. The percentages do not add up to 100% because each Web page could have more than one industry represented. * $p < .05$; ** $p < .01$

RQ2: What sources are the organizations citing to support their arguments?

Sources were counted and source types were identified on each webpage. The HSUS website contained a section of 25 pages of secondary research reports "on animal agribusiness and its toll on farm animal welfare, the environment, and public health" (HSUS, n.d., Research section, ¶1). These pages contained a range of 11 to 198 unique sources. Because they used the American Medical Association citation style, each citation in the reference list was assigned a number. On many pages, several of the same sources were listed multiple times in the reference list, giving the appearance that the report cited more sources than it actually did. For example, on the *Impact of Animal Agriculture on Global Warming and Climate Change* page, 204 sources were listed, but after eliminating duplicate references, only 146 remained. Duplicate references were listed on nine of the HSUS pages. The AAA had four pages similar to the HSUS secondary research reports citing multiple science/university sources in AMA style, but they did not have the repeat listing of the same sources in the reference list. Descriptive statistics and results of the Mann-Whitney U test can be seen in Table 3. The organizations did not differ significantly on their use of sources overall, $U = 2621.50$, $p = .39$, but they did differ on a few types of sources used. Specifically, they differed on use of science or university sources ($U = 2332.00$, $p = .04$), farmers ($U = 2664.00$, $p = .03$), and businesses ($U = 2227.00$, $p < .001$). Some examples of sources in the "Other" category were court documents and those that were unclear as to the type.

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Table 3

Differences in Use of Sources Between Organizations' Websites

	AAA			HSUS			
Source	*N*	*M*	*SD*	*N*	*M*	*SD*	Mann-Whitney U
Science/University	106	1.39	2.83	1183	16.00	35.45	2332.0*
Government	37	0.48	0.85	178	2.41	5.65	2506.0
NGO	110	1.43	2.78	91	1.23	1.79	2816.0
Media	34	0.44	0.95	106	1.43	2.93	2617.5
Business	1	0.01	0.11	44	0.59	1.37	2227.0**
Health	10	0.13	0.38	8	0.11	0.42	2719.5
Other	1	0.01	0.11	12	0.16	0.76	2685.0
Farmer	8	0.10	0.42	0	0.00	0.00	2664.0*
Joe/Jane	2	0.03	0.16	0	0.00	0.00	2775.0

Note. $^{*}p < .05$; $^{**}p < .01$

RQ3: How do the organizations use images and multimedia to supplement message content?

Photos on the pages were counted and characterized according to the content. The HSUS used significantly more photos than the AAA, U= 1343.0, p < .001. Most of the photos on the HSUS site were characterized as "Other" (n = 33, 27%) with "Anthropomorphized Animals" (portrayed as having human characteristics) coming in a close second (n = 32, 26%). The "Other" category included images of food, college faculty, and consumers. Table 4 shows the descriptive statistics and the results of Mann-Whitney U tests.

In terms of multimedia, the HSUS used significantly more videos than the AAA (U = 2050, p < .001). The AAA used significantly more audio (U = 2442, p = .001) and presentation files (U = 2479, p = .001) than the HSUS. Table 5 shows the descriptive statistics and the results of Mann-Whitney U tests.

RQ4: What is the frequency of the frames identified previously by Fraser (2005) in the organizations' communication campaigns?

A webpage could contain anywhere from zero to all six frames. The total number of frames used between the websites was similar (109 on AAA and 118 on HSUS), but the mix of frames used was significantly different. The animal welfare frame was used on 62% (n = 93) of the total webpages in the population, making it the overall dominant frame on the discussion of animal agriculture. The healthiness frame was the second most dominant frame appearing on 42 (28%) of the webpages. A Chi-square test for independence showed significant association between organization and the frames of animal welfare, x^2 (1, N = 151) = 9.01, p = .003, and healthiness, x^2 (1, N = 151) = 32.09, p < .001. Descriptive statistics are reported in Table 6.

Table 4

Differences Between Use and Characterization of Images on Organizations' Websites

	AAA			HSUS			
Photo Category	*N*	*M*	*SD*	*N*	*M*	*SD*	Mann-Whitney U
Other (food, consumers)	13	0.17	0.68	33	0.45	1.18	2492.5**
Anthropomorphized	1	0.01	0.11	32	0.43	1.01	2228.5**
Animals in distance	5	0.06	0.41	10	0.14	0.38	2585.0*
Not anthropomorphized	2	0.03	0.16	11	0.15	0.40	2537.0*
Confined animal, anthropomorphized	1	0.01	0.11	8	0.11	0.36	2654.0
Confined animal, not anthropomorphized	2	0.03	0.16	16	0.22	0.90	2612.0*
Farmers as individuals	5	0.06	0.30	0	0.00	0.00	2701.0
Dead or injured animal	0	0.00	0	6	0.08	0.32	2656.0*
Factory farm	0	0.00	0	1	0.01	0.12	2810.5
Bucolic farm	2	0.03	0.16	0	0.00	0.00	2775.0
Animal cruelty	0	0.00	0	1	0.01	0.39	2810.5
Total photos	31	0.40	1.48	124	1.68	2.53	1343.0**

Note. Percentages are of total number of photos for that organization that fall into each photo category. *p < .05; **p < .01

Table 5

Differences Between Use of Multimedia on Organizations' Websites

	AAA			HSUS			
Multimedia	*N*	*M*	*SD*	*N*	*M*	*SD*	Mann-Whitney U
PDF	33	0.43	0.87	27	0.36	0.49	2479.0
Video	10	0.13	1.14	33	0.45	0.99	2050.0*
Audio	11	0.14	0.35	0	0.00	0.00	2442.0*
Presentation	10	0.13	0.34	0	0.00	0.00	2479.0*
Photo Slideshow	1	0.01	0.11	3	0.04	0.16	2770.5

Note. *p < .01

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Table 6

Comparison of Frames Used on Each Organization's Website

	AAA		HSUS		Total		
Frame	*n*	Percent	*n*	Percent	*n*	Percent	χ^2
Animal welfare	30	39%	63	85%	93	62%	32.09*
Healthiness	29	39%	13	18%	42	28%	6.62*
Profit vs. animal care	11	14%	20	27%	31	21%	2.88
Environment impacts	15	19%	9	12%	24	16%	1.01
Agribusiness owners	12	16%	9	12%	21	14%	0.14
Food supply	12	16%	4	5%	16	11%	3.12

Note. Content regarding food safety was considered part of the healthiness frame.
* $p < .01$

Conclusions & Discussion

The first research question (RQ1) addressed the amount of coverage given to each industry within animal agriculture. An association was found between coverage of animal agriculture in general and a few particular industries, including layer hens, broiler chickens, geese, and fish and crustaceans. The HSUS was one of the key proponents of Proposition 2 in California. This Proposition stated that calves raised for veal, egg-laying hens, and pregnant pigs can be confined only in ways that allow these animals to lie down, stand up, fully extend their limbs, and turn around freely (*Prop 2: Standards for confining farm animals,* 2008*)*. The recent passage of Proposition 2 in California could be evidence of the HSUS' successful persuasion tactics and coverage of the layer hen industry brought to surface in this study.

Research Question 2 determined what sources the organizations used to support their arguments. Although the organizations did not differ in the total amount of sources used, the HSUS tended to use more science or university-based sources to support their claims. Science and university-based sources generally have high credibility, which is positively related to persuasiveness in changing attitudes and gaining behavioral compliance (Pornpitakpan, 2005). The ELM clarifies that the impact of source expertise on persuasion is greater when involvement is low; however, when involvement is high, it matters less in the receiver's decision (Petty & Caccioppo, 1986). This theory implies that although high-involvement audiences (e.g., HSUS members) may not be influenced by the perceived expertise of science and university-based sources, less involved audiences are more susceptible to the influence of sources used in persuasive messages. Another interesting finding is that AAA used significantly more farmers as sources than HSUS. In fact, HSUS did not use any farmers as sources in their website material.

Interestingly, the citation style on the HSUS secondary research reports yielded an inflated number of sources. By only examining the numerical value on the last reference, the reader may think the arguments are well-supported by 204 sources, when in actuality, there are 146 unique sources. Although 146 sources is still impressive, the number of sources can serve as a peripheral cue leading people to favor the position simply by noting it has a number of reasons supporting it. The ELM explains that reliance on peripheral cues occurs when the audience has low motivation or low ability to think about a message (Petty & Cacioppo, 1996).

The third research question (RQ3) examined how images and multimedia were used on the organizations' websites. The use of photos and multimedia seemed to serve three purposes: 1) they dis-

played evidence of a certain viewpoint, 2) appealed to emotions, and 3) served as a peripheral cue for low-involvement audiences (Miniard et al., 1991). In this study, HSUS used significantly more photos and video than the AAA, which means the HSUS website may be more effective in persuading people to adopt their viewpoint when the viewer is lower in issue involvement. The HSUS tended to use more photos of anthropomorphized animals than the AAA. Photos depicting anthropomorphized animals, by definition, generate sympathy by humanizing the animals. These affect-laden photos can serve as a strong peripheral cue causing people with low involvement to be more persuaded by the images rather than the arguments (Miniard et al., 1999). The AAA had significantly more presentations available for download, which could be useful for distributing its viewpoint to larger audiences if people use them to speak to groups face-to-face. In-person communication can be more effective in forming, reaffirming, or changing attitudes than mass media channels like static webpages due to increased normative pressure (Bordia, 1997).

To answer the final research question (RQ4), Fraser's (2005) frames surrounding the topic of animal agriculture were shown to be present on these organizations' websites. This study went a step further and demonstrated the extent to which these frames appeared in messages. The issues in animal agriculture are predominantly communicated through animal welfare and human health frames; this study revealed the HSUS tended to use the animal welfare frame, while the AAA used the health frame. The health frame is powerful because it has direct consequences for most people when considering animal agriculture issues, whereas the animal welfare frame has more removed consequences. The AAA obviously was addressing a number of different issues more fully because the industry is confronted with multiple concerns beyond animal welfare. By contrast, as an animal activist group, HSUS was a single-issue advocate. Even the HSUS's concerns about health and animal care had animal welfare implications.

Implications & Recommendations

Based on theory and the results of this study, some implications are worthy of discussion. Findings indicated the Humane Society's Factory Farms website had significantly more content overall, more content regarding the layer and broiler industries, more science and university sources, and contained more message strategies indicative of effective persuasion than the AAA. The HSUS has integrated more communication strategies that appeal to both high- and low-involvement audiences throughout their website, whereas the AAA messages will primarily appeal mostly to those highly involved and motivated to think about animal agriculture issues.

Agricultural and other science organizations consistently try to address negative messages about agriculture by educating or informing the public. While this public relations strategy is useful when done well, it cannot be the sole effort because most people are not motivated or highly involved in animal agriculture. Education and information alone will not work with all audiences. Involvement will likely be higher when messages are framed using food safety and health issues, but agricultural organizations, like the AAA, need to recognize the power of capturing audiences possessing low involvement by using a combination of high-quality arguments and peripheral cues.

Both organizations have the goal of persuading members of the general public, agribusiness owners, and state and federal policymakers about issues related to animal agriculture through multiple methods. The existence of social movements that seek to decrease or prevent common animal agriculture practices demonstrates the necessity for the agricultural industry to be cognizant of pressures to change the status quo. This change may occur by force through market pressure and government regulations, or voluntarily in compliance with societal values and attitudes. As previously

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stated, resulting policies and changes in consumerism and cultural values will partly be traceable to the efforts (or lack thereof) of these societal actors. From this study, the researchers speculate that those changes may lean more toward the viewpoint of the HSUS than a compromise if proponents of animal agriculture, the AAA and those alike, do not improve the persuasion tactics used in their communication efforts.

The primary limitation in this study is the purposive selection of organizations involved in communicating animal agriculture issues. Future research should investigate persuasive message factors of other organizations that communicate about animal agriculture to discover findings representative of other proponents and opponents of the issues. While this content analysis can explain the content of the public relations communication campaign and make theoretical inferences about persuasion effects, additional research is needed to test the effects of Fraser's (2005) frames, animal agriculture imagery, and source citation techniques (i.e., numbering vs. not numbering). Furthermore, future studies should examine the impact of website usability and design on the ability or motivation to process persuasive messages.

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Research

Communications Training Needs in Arkansas' Agritourism Industry

Jefferson Miller, Stacey McCullough, Daniel Rainey and Biswaranjan Das

Abstract

Agritourism has emerged globally as a tool to diversify farm income, and the need for non-formal educational programming in this area has become obvious. In Arkansas, Cooperative Extension educators have lacked empirical data to guide program development. One clear need, according to literature, is for operators to improve marketing communications skills. Researchers surveyed agritourism operators in Arkansas to describe demographics, educational needs (especially related to marketing communications), and educational delivery preferences. Results indicated that operators were typically older than 50 and that 60% had been in operation for longer than 10 years. Key issues and educational needs related to marketing communications included promotion and marketing, advertising, media relations, and signage. Communications tactics commonly used by the respondents included word-of-mouth (WOM); websites; print, radio, and television advertising; and local media relations. Preferred delivery methods for educational programming related to agritourism included periodic newsletters, regional workshops, and news releases.

Keywords

agritourism, tourism, agricultural communications, marketing communications, rural development, risk management, survey research

Introduction

A collection of academic literature demonstrates how adding agritourism enterprises to small and mid-sized farms could be a legitimate step toward economic sustainability of small and mid-sized farms (e.g., Bruch & Holland, 2004; Das & Rainey, 2008; Hall, Roberts, & Morag, 2003; Hodur, Leistritz, & Wolfe, 2005; Honadle, 1990; Ryan, Debord, & McClellan, 2006). This sentiment is even more important in light of the observable fact that many farms likely to benefit from agritourism are in or near impoverished rural communities. While farmers may not get rich by starting new agritourism enterprises, they may well be able to preserve their family farms and the heritage and culture attached to them in the rural landscape. As a result of intensified industry development and promotion during the past 20 years in the U.S., the amount of income for individual farms participating in agritourism continues to increase annually (U.S. Department of Agriculture-National

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Agricultural Statistics Service, 2007b). Yet, as the industry establishes itself more firmly across the country, not every new agritourism enterprise is successful. The number of agritourism operators in many states actually decreased significantly between 2002 and 2007. Still, revenue per farm increased in some states by as much as 100% or more in the same time period (USDA-NASS, 2007b).

As state governments and other public and private entities attempt to foster agritourism growth and limit failures, many of them have commissioned and conducted research to better understand the industry in their states and to identify issues that could cause barriers for agritourism entrepreneurs. As cases in point, researchers in Pennsylvania (Ryan et al., 2006), Vermont (Comen & Foster, n.d), and Tennessee (Bruch & Holland, 2004) have published reports describing their respective states' agritourism industries. While these studies are especially important for policy-making purposes affecting rural community development in each state, the collection of state-level descriptions, which grows each year with further state-level research, adds to the U.S. agritourism industry's knowledge base on a national level.

The Arkansas Agritourism Survey

Pittman (2006) asserted in his description of Arkansas' agritourism industry that examining the industry and its potential economic impact is paramount to the industry's future in the state and could be beneficial to decision-makers in other states whose agritourism industries are developing similarly. To address this need, researchers in Arkansas joined the national trend and examined their state's industry, seeking particularly to identify the current and potential economic impacts of the industry on the state's economy and to identify barriers to progress as well as educational needs of those involved in the industry. A broad-ranging survey project was needed to help describe the industry in Arkansas and to generate data that could be used to support the growth of agritourism statewide, nationally, and globally.

Though the results of this survey were specific to agricultural tourism operations in Arkansas, their implications may have relevance to agritourism practitioners and researchers across the U.S. and the world. And because research on the state of the U.S. industry is key to its future (Pittman, 2006), the collection of state-level studies will constitute a description of the industry nationwide. In addition, if viewed as a case study, the results of this geographically specific analysis in Arkansas may have great value to others who may find similarities between the industry in Arkansas and the industry in their specific regions.

Objectives

Though the Arkansas survey's purpose was to describe broadly the state's agritourism industry in terms of economics as well as demographic characteristics, this article focuses on the survey data that was related to the educational needs of Arkansas agritourism business owners (Economic impact data is reported in a separate article.). In particular, this article places a special emphasis on data related to agritourism operators' need for training in marketing communications and promotion. By most experts' opinions, no aspect of running an agritourism business is more important than the marketing and promotions aspect (Dunn, 1995; Eckert, 2008; Hall et al., 2004). State Cooperative Extension Services are in a good position, with their already established audiences and channels of communication, to be the frontrunners in educating agritourism business owners about these important communications-related skills (Hondle, 1990). The conclusions and recommendations of this article should help guide Extension personnel and other promoters of the agritourism industry as

they develop nonformal educational materials to help agritourism entrepreneurs learn to strengthen their marketing communications skills.

This article describes the findings, conclusions, and practical recommendations stemming from the survey of Arkansas agritourism business operators, which was guided by the following objectives:

1. Describe demographic characteristics and current practices of Arkansas agritourism business operators.
2. Identify agritourism business operators' perceived educational needs, with a special emphasis on needs related to marketing communications.
3. Identify respondents' preferred educational delivery methods with regard to their reported educational needs.

Recent Agritourism Research and Literature

Thematic among agritourism literature is the concept that agritourism ventures are viewed positively by state and local business and political leaders because of agritourism's potential beneficial impact on local and state economies. Several states, including Tennessee (Bruch et al. 2005), New Jersey (Schilling, Marxen, Heinrich, & Brooks, 2007), Maine (Allen, Gabe, & McConnon, 2006), Pennsylvania (Ryan et al., 2006), and Vermont (Comen & Foster, n.d), have completed in-depth studies describing their industries. Such studies make clear that growth exists economically as well as in terms of popularity among tourists. They also provide other state industries with case studies and ultimately a national collection of knowledge about the industry on which to base decisions affecting future industry growth and industry-related public policies.

McGhehee (2007) developed a model describing the agritourism enterprise from the perspective of systems theory. Though her Weberian model of agritourism emphasized the need for improved communications, especially marketing communications, only a relatively small amount of recent research has described marketing tactics and marketing communications tools used in the agritourism industry. Dunn (1995) noted that the most popular methods of targeting agritourists in both Arizona and Michigan was word-of-mouth (WOM) marketing, print publications and print advertising, radio advertising, and outdoor advertising. This description has held true across several states. Studies in New Jersey (Schilling et al, 2007), Illinois (Dougherty & Green, 2008), Tennessee (Holland & Wolfe, 2001) and Pennsylvania (Ryan et al., 2006) all confirmed that WOM was the most important marketing communications tactic for agritourism operators. Researchers have not yet begun to explore the impact of electronic WOM in agritourism, but some literature in the broader hospitality management discipline supports the importance of electronic WOM through websites, blogs, and other social media (Litvin, Goldsmith, & Pan, 2007). In addition to WOM, newspaper advertising and brochures, along with websites, were most popular in Illinois (Dougherty & Green, 2007). Roadside signage, newspaper advertising, and newspaper articles were key in Arizona (Dunn) as well as in New Jersey (Schilling et al.). Eckert (2008) observed that having a professional web presence in the form of a promotional website is an absolute necessity for a successful agritourism business.

Many state-level studies have assessed operators' concerns and barriers to industry growth. Marketing and promotion was among the chief concern for agritourism operators in Pennsylvania (Ryan et al., 2006), Tennessee (Bruch & Holland, 2003), Michigan (Che, Veeck, & Veeck, 2005), and New Jersey (Schilling et al., 2007). Some studies recommended more state-funded promotion activities in support of agricultural tourism (e.g., Tweeten, Leistritz, & Hodur, 2008). Other important concerns

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included liability issues and hiring qualified employees (Bruch & Holland, 2003; Ryan et al., 2006; Shilling et al., 2007).

Some recent research exists on the educational delivery techniques preferred by farmers, though none has focused on agritourism operators specifically. Of note is the common conclusion that many farmers are somewhat averse to new communications technologies and still prefer face-to-face training situations and traditional publications over any other kind of delivery method (Gaul, Hochmuth, Israel, & Treadwell, 2009). Lasley, Padgitt, and Hanson (2001) as well as Radhakrishna, Nelson, Franklin, and Kessler (2003) and Howell and Habron (2004) all found a preference for fact sheets and newsletters and a definite lack of preference for Internet technologies.

Methods

The University of Arkansas Survey Research Center (SRC) conducted a telephone survey of 102 operators of agritourism businesses in Arkansas who agreed to participate in the study. The population consisted of 310 operators (each of whom researchers attempted to contact) whose names were part of a contact list compiled by the state's lone agritourism industry group, the Arkansas Agritourism Initiative. It is known that the list of 310 was not comprehensive and was most likely representative of the more publicly engaged and well-connected agritourism business owners statewide. The population appeared to contain a number of agritourism entrepreneurs who had interests in promoting local agriculture-related festivals to draw tourists to their area, and the group lacked representatives of agritourism operators in the hunting and fishing industries. Still, this list represented the largest known database of agritourism enterprises in Arkansas and served as a legitimate population for the survey.

Following standard telephone survey procedures outlined by Dillman (2007), the SRC conducted telephone interviews between February 19 and March 5, 2009. Interviewers conducted a 140-item survey, which lasted approximately 15 minutes per subject. A somewhat similar study conducted previously in Tennessee (Jensen, Dawson, Bruch, Menard, & English, 2005) served as a guide for survey question development, as did Ollenburg and Buckley's (2007) survey on motivations of agritourism operators.

The instrument and survey procedures were pilot-tested and evaluated by agritourism experts and survey research experts—university faculty in agricultural economics and agribusiness and agricultural communications, as well as survey researchers in the University of Arkansas Survey Research Center—to enhance validity and reliability and to improve the effectiveness of the data collection procedures. As a result of feedback from the pilot test, several survey questions were combined to shorten the telephone survey time, thereby reducing participant attrition. The pilot testing also resulted in minor rewording of the survey questions themselves to clarify the questions for the participants.

Results

Description of Agritourism Operators

Length of Operation

Most respondents' agritourism enterprises had been in operation for 10 years or longer. Thirty percent of the agritourism operators had been in business for 10 years or less (Table 1). Thirty-four percent of respondents had been in business for 11 to 20 years. Additionally, 37% had been operating their agritourism enterprises for more than 20 years.

Table 1
Duration of agritourism business operation in Arkansas (N=102)

Duration	Number of Operations	Percent of All Operations (%)
0-5 years	11	10.8
6-10 years	19	18.6
11-20 years	35	34.3
21-50 years	27	26.5
More than 50 years	10	9.8

Types of Operations

Several types of agricultural operations existed among respondents. On-farm retail outlets were the most common agritourism activity provided to customers, with 62 of the respondents offering this service (Table 2). Other highly cited activities include agriculture-related festivals, pick-your-own (U-pick), and farmers' markets, with 49, 46, and 45 respondents reporting these activities respectively. Pumpkin patches and on-farm lodging (e.g., bed and breakfasts) were also popular enterprises.

Table 2
Types of agritourism operations in Arkansas (N=102)

Type of Operation	Number of Operations[1]	Percent of All Operations (%)
Winery	4	1.32
Christmas Tree Farm	6	1.99
U-pick	46	15.23
Pumpkin patch	26	8.61
Ag museum	10	3.31
Ag festival	49	16.23
On-farm Retail Outlet	62	20.53
On-farm Hunting	17	5.63
On-farm Lodging	22	7.28
On-farm Fishing	15	4.97
Farmers' Market	45	14.90

[1]Most operators reported more than one type of agritourism operation at their farms

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Reasons for Engaging in Agritourism

Though increasing income appears to have been the top motivator for this group of entrepreneurs, many respondents had other motives for starting their businesses. The most-cited reason (32%) for engaging in agritourism was to supplement the agritourism operator's income (Table 3). Reponses regarding other reasons for working in agritourism were the operator enjoyed working with people (26%), the operator liked the eco-friendly nature of activities (20%), and the operator enjoyed the opportunity to teach visitors about the farm heritage (17%).

Table 3
Reasons Arkansans engage in agritourism (N=102)

Principal Reason for Engaging in Agritourism	Number of Operations	Percent of All Operations Reported (%)
Supplement income	65	63.7
Teach visitors about farm heritage	34	33.3
Enjoy working with people	53	51.9
Like eco-friendly nature of activities	40	39.2
Other reason	10	9.8

Age, Gender, and Education of Operators

The respondents were an aging group, a fact that mimics the national demographic of farmers, whose average age is about 57, according to USDA-NASS (2007a) census figures. Only 2% of the respondents were under the age of 30, while nearly two-thirds of the respondents (66%) were over the age of 50.

Though the respondents were mostly male, a number of female respondents were identified as agritourism business operators. Sixty-three percent of the respondents were male and 37% were female.

The agritourism providers in this study tended to be better educated than the general population in Arkansas. Fifty-three percent of the operations' owners had a bachelor's degree or higher. This compares to 19% for the overall Arkansas population at the time of the most recent census estimate (U.S. Census Bureau, 2010). Another 33% had graduated high school and attended college for some amount of time.

Operators' Concerns and Educational Needs

Another objective of this study was to identify perceived barriers or concerns regarding the operation of the subjects' agritourism businesses. These concerns, along with the respondents' perceived educational needs, may provide some indication of the issues that educational materials should concentrate on. Concern about communications-related issues was thematic throughout the responses. The most important concern among respondents, with an average of 3.46 on a 5-point scale (1=no

concern, 2=slight concern, 3=moderate concern, and 4=high concern, 5=very high concern), was promotion and marketing (Table 4). Two other concerns with average responses above 3 on a 5-point scale were liability issues (3.08) and affordable health insurance (3.06). Signage (2.92), finding and hiring quality employees (2.84), and financing (2.79) were of lesser importance to the respondents, yet their means were well above the median on the 5-point scale.

In all, nine educational topics among a list of 16 were rated 3.0 or higher on a 5-point scale measuring average level of value to operators (1=not at all valuable, 2=slightly valuable, 3=somewhat valuable, 4=valuable, and 5=very valuable). The most important self reported educational needs included legislation and government support (3.74), grant resources (3.47), advertising (3.44), niche marketing opportunities (3.44), liability insurance and risk (3.37), and media relations (3.31) (Table 5).

Table 4

Arkansas agritourism operators' concerns (N=102)

Issue	Mean Level of Concern (5-Point Scale)	SD	Percentage of High or Very High Concern (%)
Promotion and Marketing	3.46	1.27	53
Liability Insurance	3.08	1.31	41
Affordable Health Insurance	3.06	1.63	54
Signage	2.92	1.29	35
Finding & Hiring Quality Employees	2.84	1.54	43
Financing	2.79	1.37	33
Licenses & Permits	2.50	1.31	21
Zoning	1.81	1.16	10

Note: (1=no concern, 2=slight concern, 3=moderate concern, 4=high concern, and 5=very high concern).

Marketing and Communications Methods

Promotion and marketing emerged as an important issue for agritourism operators. Further data regarding common marketing and promotions tactics were collected, which further points to the need for education and training on these important business functions. Agritourism operators reported that the marketing communications tactics they used the most in promoting their businesses included word of mouth (97%), websites (70%), print and broadcast advertising (63%), and local media relations (56%). The least-used tactics included media relations with travel magazines (18%) and ads in travel magazines (23%) (Table 6).

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Table 5

Importance of educational topics to Arkansas agritourism operators (N=102)

Educational Topic	Mean Level of Value (5-Point Scale)	SD	Percentage of Valuable or Very Valuable (%)
Legislation & Government Support	3.74	1.40	67
Grant Resources	3.47	1.59	60
Niche Market Opportunities	3.44	1.37	54
Advertising	3.44	1.37	52
Liability & Insurance Risks	3.37	1.42	53
Media Relations	3.31	1.37	49
Finance, Accounting, & Tax Issues	3.19	1.48	48
Infrastructure Development	3.00	1.51	40
Property & Water Rights	2.96	1.60	48
Personnel & Labor Issues	2.84	1.56	42
Estate and Succession Planning	2.58	1.52	31
Supply Chain Management	2.39	1.44	29
Zoning & Safety Code Issues	2.35	1.41	25
Transportation & Logistics	2.21	1.29	21
Lodging Management	2.15	1.42	21
Restaurant & Food Service Management	1.91	1.33	16

Note: (1=not at all valuable, 2=slightly valuable, 3=somewhat valuable, 4=valuable, and 5=very valuable).

Table 6

Most-used marketing communications tactics (N=102)

Marketing Communication Tactic	Percent of Respondents Employing Tactic %
Word of Mouth	97
Web Site	70
Print, Radio, TV Ads	63
Local Media Relations	56
Direct Mail	33
Trade Association Listservs	33
Trade Association (print) Ads	28
Media Relations with Trade Associations	25
Travel Magazine Ads	23
Media Relations with Travel Magazines	19
Other	18

Preferred Educational Delivery Methods

Survey respondents also were asked to indicate of the usefulness of different forms of educational materials to learn about practices that could improve their agritourism businesses. Possible responses to these questions were "not at all useful," "slightly useful," "somewhat useful," "useful," and "very useful." Periodic newsletters emerged as the most useful educational materials, in addition to news releases, regional workshops, and books or resource guides. Table 7 illustrates the percentage of responses associated with each type of resource.

Table 7

Usefulness of educational delivery methods (N=102)

	Resources						
Level of Usefulness	Book or Resource Guide (%)	Regional Workshop (%)	Fact Sheet (%)	Online Training Module (%)	College-level Internet Course (%)	Periodic Newsletter (%)	News Release (%)
Very Useful	30	36	24	21	19	30	33
Useful	25	23	29	23	23	39	31
Somewhat Useful	20	21	21	19	11	17	20
Slightly Useful	12	6	6	11	14	7	5
Not At All Useful	13	15	15	25	33	7	12

Conclusions, Discussion, and Recommendations

According to McGehee's (2007) Weberian model of agritourism, one key to a more successful industry is a better understanding of industry issues among all stakeholders. The data produced by this study facilitate that shared understanding. In a more broad sense, this description of agritourism operators in Arkansas contributes to the collection of state-level industry descriptions in the U.S. (e.g., Schilling et al., 2007; Ryan et al., 2006; and Bruch & Holland, 2004) and adds to the collection of knowledge about agritourism operators and their needs, especially in terms of training in marketing communications, which was another important aspect of McGehee's systems model.

The Demographics of Agritourism Operators

Demographic data showed that the study participants were mostly males and mostly well-educated. This conflicts with some opinions in the literature that females commonly manage the farm-based tourism enterprise (Comen & Foster, n.d.). It also could possibly indicate a shift in responsibilities, as some agritourism businesses become the primary economic engine for the farm (Busby & Rendle, 2000). Though many operators were motivated to start their agritourism business

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to increase their income, nearly as many were motivated by other factors, including a desire to work with the public and a desire to share their passions for being good environmental stewards. This description is in line Ollenburg and Buckley's (2007) description of agritourism operators worldwide. Further, data from the Arkansas study show that agritourism business operators appear to share a passion for educating others about their own culture. This characteristic also appears to be shared with agritourism business operators worldwide, as demonstrated by Ollenburg and Buckley. The survey participants represented agritourism businesses that focused heavily on retail sales (including on-farm and off-farm markets), festivals, or pick-your-own systems. Additionally, there were fewer new business owners than may have been expected, considering Eckert's (2008) prediction of 30% industry growth in the U.S. This is in line with recent USDA-NASS (2007b) data showing a reduction in agritourism operations yet a rise in overall agritourism income. Most of those surveyed had been in business longer than 10 years. These findings are most likely mitigated somewhat by the pool of accessible subjects, which included agritourism operators who were well-connected to public education efforts and engaged in previous non-formal educational activities sponsored by the Arkansas Agritourism Initiative.

It follows that educational programs targeted toward the clientele involved in this study should be developed with these empirically based demographic data in mind. Extension educators should be mindful of inaccurate stereotyping of agritourism in Arkansas. Though the more stereotypical enterprises—such as pumpkin patches, Christmas tree farms, and wineries—exist and may the at the forefront of Arkansas' agritourism industry, they are not necessarily the most prevalent types of enterprises in the state. The findings of this study also may also counter stereotypes related to age and gender in the industry. And certainly, with 84% of the operators surveyed having completed at least some college, certain stereotypes regarding the education levels of agritourism operators should be more closely examined when developing educational programming for the industry.

Educational Topics in Agricultural Business and Communications

A new understanding of the important concerns reported by respondents can guide educators who desire to serve this sector. In particular, the agritourism operators in this study were concerned about their ability to market and promote their enterprises. McGehee's (2007) model of agritourism placed high importance on improved industry communications, especially marketing communications. The results of this study show that Arkansas agritourism operators are aware that the lack of skill in marketing communications is a barrier to economic success.

Operators also had concerns about liability issues, securing affordable health insurance, developing signage, hiring quality employees, and securing financing. Obviously, if these are important issues for the agritourism operators in Arkansas, the operators would be motivated to take advantage of educational efforts to strengthen their knowledge of these subjects.

In addition to examining respondents' concerns, this survey also required participants to rate the value of specific educational topics related to the agritourism industry. The responses to the Arkansas survey clearly indicated that the operators wanted to learn more about how to obtain government help in the form of legislative support and grant funding and government-sponsored promotion for their industry. This finding is congruent with Tweeten et al.'s (2008) description of industry needs. The responses also indicated a desire among respondents to learn more about topics related to marketing communications, including advertising, niche marketing opportunities, and media relations. Each of these topics appears to be a legitimate subject for inclusion in future educational materials

for these clientele.

The findings related to the use of marketing communications techniques provide further direction for specific educational programming for this group of entrepreneurs. Ninety-seven percent of respondents listed word of mouth as an important marketing communications tactic, yet only 18% used any media relations efforts with travel magazines to reach their target audience, and 30% reported not having an Internet presence (website or other social media). Though previous industry analysis has shown that word-of-mouth (WOM) has historically been an important marketing tool (Dougherty & Green, 2008; Dunn, 1995; Holland & Wolfe, 2001; Ryan et al., 2006; Schilling et al, 2007), the fact that it is such a popular tool by far among Arkansas agritourism operators warrants further investigation.

Two possible implications for the WOM finding exist: (1) Operators are simply relying on an old-fashioned method of marketing and need to learn more about better, more efficient marketing communications techniques; or (2) WOM is a successful marketing technique in its own right, and since operators use it so prolifically, educational materials should be developed to help facilitate WOM techniques in the agritourism industry, including electronic WOM via blogs, message boards, and social media (Litvin et al., 2007). Further, the findings of this survey showed that respondents' knowledge of how to conduct media relations with specific types of print, broadcast, and Internet-based media, as well as their knowledge of web-based marketing could be strengthened via Extension programming efforts.

Preferred Educational Delivery Methods

The Arkansas agritourism operators surveyed will be most likely to use traditional nonformal educational methods, such as newsletters, news releases, regional workshops, and books or resource guides in their efforts to educate themselves about how to operate their businesses. These findings are not surprising when viewed in context of other studies of farmers' communication preferences, many of which described farmers as preferring very traditional modes of communication when consuming educational information, including face-to-face meetings, workshops, and demonstrations (Hall & Rhoades, 2009; Franz, 2009) and non-technology driven media such as fact sheets and publications (Howell & Harbon, 2004; Gaul et al., 2009). The demand for more technologically advanced delivery methods, such as on-line training modules and Internet-based, college-level courses is not as large with this group, though some interest does exist.

Overall Recommendations for Research and Practice

Though these conclusions and recommendations are most applicable to educational programming for agritourism operators in Arkansas, readers may find some similarities between the case in Arkansas and their own state. Continuing education and training efforts across the U.S. will likely continue to increase and develop, and this study helps add to the knowledge base that will guide programming focused on education agritourism operators.

The prescriptive recommendations for practice related to this research are mostly covered in the discussion above. However, the importance of basing decisions about educational programming for agritourism businesses upon sound empirical research cannot be understated. The conclusions of this study, when considered by Cooperative Extension Service educators or by college faculty, are likely to change opinions and spark new ideas regarding the topics and delivery methods of educational programming targeted toward agricultural tourism operators like those participating this study.

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Further research on this topic should focus on obtaining even more descriptive information about agritourism operators and their educational needs, especially those related to marketing communications. The prominence of WOM marketing tactics in the agritourism industry is most intriguing and deserves further investigation. Further, it is possible that there is a significant relationship between sales receipts and preferred marketing communications tactics of those involved in this study. Analysis of this relationship is underway. Also, on a more broad scale, aggregating and comparing the results of similar state-level studies would be beneficial. An understanding of the regional differences among agritourism operators and their educational needs would surely help guide regional and national efforts that could be shared via eXtension.org and other regional and national educational channels. Finally, numerous opportunities for case study and qualitative-type research exist that might lead to the discovery of not only "best management practices," but also the subtle nuances among the marketing communications and business management practices of the more successful agritourism businesses.

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